The IRON AGE
July 31, 1958 A Chilton Publication The National Metalworking Weekly

Stop H_2 Failure In Cadmium-Plated Steel P. 47

Will Mideast Crisis Tighten Steel Market? – P. 19
How to Make Plant Tours Pay Off – P. 25
Digest of the Week – P. 2-3

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The IRON AGE

July 31, 1958—Vol. 182, No. 5

Digest of the Week in

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NEWS ARTICLES

STEEL MARKET

To Get Tighter—Effect of the Middle East flare-up hasn't been felt in the steel market yet—but it will

be. Deliveries will lengthen at least one to two weeks for many products in fourth quarter. P. 19

TAX BREAK

For Small Business—A new tax bill in Congress is meeting little opposition. It will allow small firms to write off 20 pct of cost of new and used equipment in first year after purchase. P. 23

WORLD STANDARDS

U. S. Interest Lags—Already there are reports of U. S. firms losing foreign business because new world standards differ from ASTM. American firms are urged by ASA to give their story to the world standards committee. P. 24

NEW 1959 AUTOS

A Preview—General Motors is making the most radical changes in 1959 models. Ford gets a new body. Chrysler Corp. is putting

Metalworking

CHECK EMBRITTLEMENT: There's a new technique for ridding plated steel of hydrogen embrittlement. Professor A. R. Troiano of Case Institute of Technology, one of the researchers who developed the method, examines a tensile specimen under investigation. P. 47

most of its revamp money in Plymouth. The big question: Will major styling changes sell more cars next year? P. 32

RED TRADE

Embargo Eased—List of goods banned from Red trade will be greatly eased. Machine tools and vehicles are among products lifted from the prohibited list. P. 37

FEATURE ARTICLES

ANODIZING TREATMENT

Conveyor Allows Choice—A new anodizing machine permits separate cycles for each rack of parts fed at random. It's a solution for independent suppliers that anodize parts for many different customers, each specifying special treatment. P. 51

HEAT-STRESS UNITS

Test Full-Size Parts — Using banks of 1000 or more quartz infrared lamps, missile engineers are testing actual parts and whole assemblies. An elaborate system of jacks, linkages, and backups applies loads at high temperature. P. 54

CENTRAL COOLANT SUPPLY

Continuous Waste Removal—A fully automatic unit is continuously removing insoluble wastes from a plant's central supply of cooling emulsifying cutting oil. Productivity of the 54 machine tools linked to the system has been increased greatly due to reduced maintenance and elimination of down time for removal sump cleaning. P. 56

NEW FURNACE

Speeds Vacuum Heat Treat—A new furnace heat treats production-size loads at upward of 3000°F and in 0.1 micron vacuum. The unit gets to these levels in something less than half an hour, can be accurately controlled, and cools the work just as quickly. P. 58

CUT DRILL BREAKAGE

On Small Deep Holes— Minimizing both drill breakage and the damage that could result from broken drills, an automatic unit uses a special proximity pickup to detect condition of drills. P. 60

MARKETS & PRICES

CURTAIN WALLS

Opposition Wanes—More cities are revising building codes to make way for curtain walls. At latest count, 78 of 100 largest U. S. cities have or are expected to approve this type construction. P. 22

VENDORS

How to Rate Them—GE specialist offers simple plan to rate vendors on price, performance, and service. It's not a cureall, but can help avoid many pitfalls. P. 21

FARWEST STEEL OUTLOOK

Mills Expect Upturn—The third quarter will be the low point in shipments, says spokesman for major West Coast steel mill. He and others see gains after that. P. 39

MACHINE TOOLS

How Tax Plan Works—New tax bill gives a tax break on first $10,000 of equipment purchase. Many believe the bill doesn't do enough to really help. P. 41

STEEL PRICE OUTLOOK

It Could Be Smaller Than Expected—The coming steel price hike may be less than had been expected. U. S. Steel Corp. reportedly is considering an advance of only $4 per ton. Earlier indications were that the boost would be about $5.50 P. 77

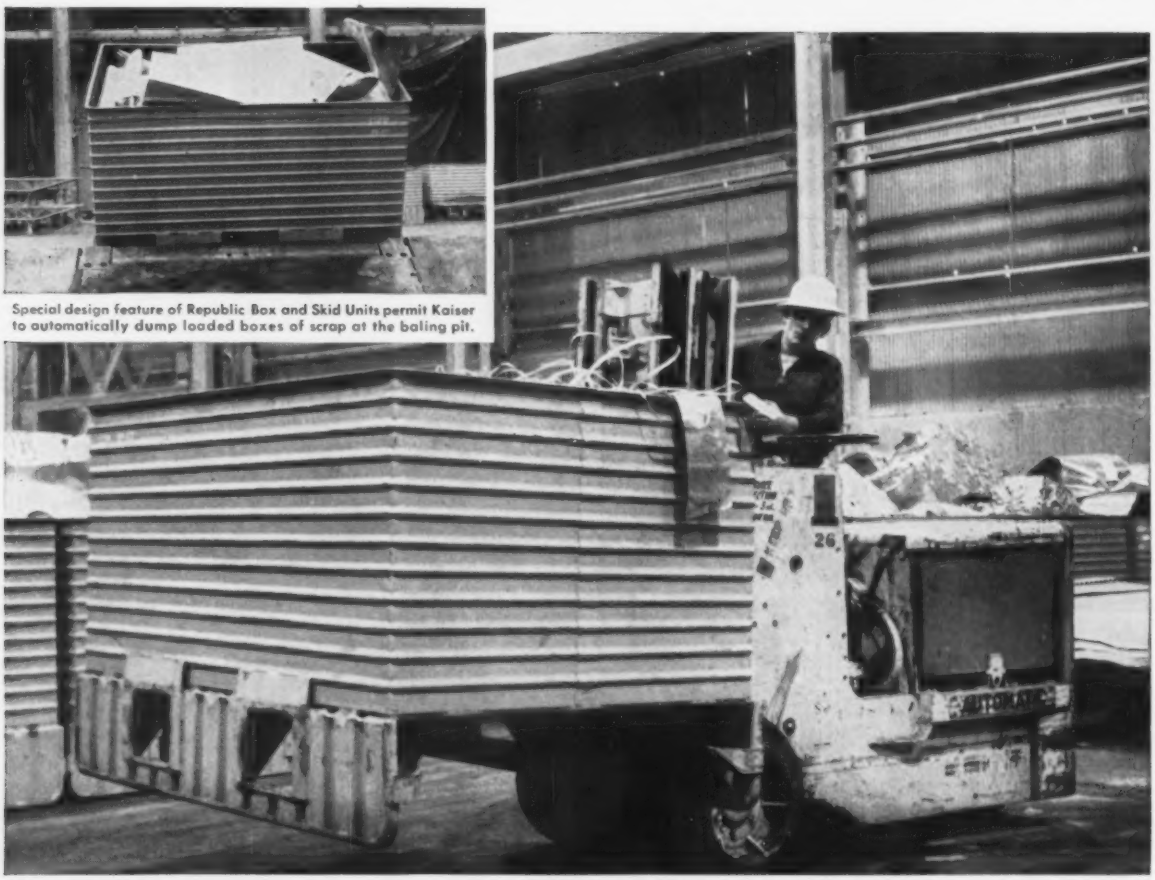
NEXT WEEK

CHINESE STEEL

Ambitious Plans — Red China's neophyte steel industry is completing its first Five Year Plan. Next week's special report will weigh the official figures and discuss Chinese plans to overtake Britain in steelmaking capacity in 15 years.

New Materials Handling Ideas from Republic

STEEL BOXES SERVE AS PORTABLE WAREHOUSES, PROVIDE SPEED, ACCURACY IN HANDLING SCRAP



Special design feature of Republic Box and Skid Units permit Kaiser to automatically dump loaded boxes of scrap at the baling pit.

THESE REPUBLIC STEEL BOX AND SKID UNITS ARE PERFORMING DOUBLE DUTY at Kaiser Aluminum & Chemical Corporation's new Ravenswood, West Virginia Works. The units play an important role in helping Kaiser maintain its scrap identification and separation system.

The boxes are used first in finishing areas where scrap is generated. When filled, each box is tagged to indicate the type of alloy it contains. Then it is picked up and moved by fork lift truck to a storage area where it serves as a portable warehouse. The boxes remain in storage until the scrap is scheduled for baling and remelt.

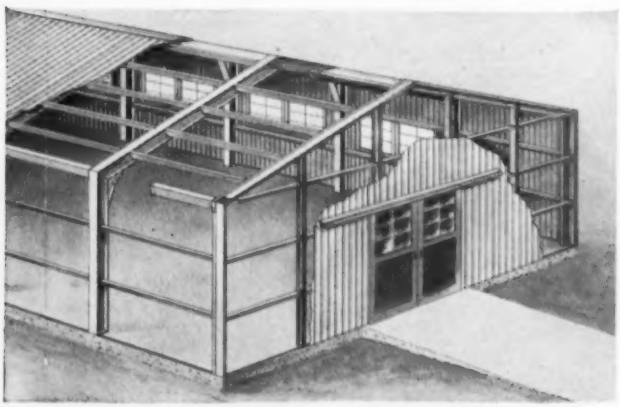
The boxes, designed and built by materials handling specialists at Republic's Berger Division, measure 6′ 5″ long, 4′ 6″ wide, and 4′ 1½″ high. They are built for 8000 lb. load capacity. The skid sections are designed for four-way entry by fork truck to provide easy handling in restricted space. This design feature also permits the boxes to be dumped automatically by a tipping device at the baling pit.

In addition to fast, accurate scrap handling, Kaiser should also benefit from future savings in maintenance costs. Corrugated construction of the box and skid units adds strength and rigidity, assures long service life at the lowest per-year cost.

Talk over your handling or storage problems with a Republic Specialist. He will help you select or design a standard or special unit that could save time, cut costs, simplify an operation. There is no obligation. Contact your Republic Materials Handling Representative. Or mail the coupon.

SPACE-SAVING HIGH STACKING WITH THE WORLD'S STRONGEST SHELVING. It's Wedge-Lock Steel Shelving manufactured by Republic's Berger Division. The secret of high stacking is in Wedge-Lock's exclusive sway-proof joint that actually becomes tighter as the load increases. Wedge-Lock includes the three essentials of good steel shelving: a post that will not buckle, a reinforced shelf that does not sag, a concealed sway-proof joint. Berger storage engineers will help you design an installation to fit your needs. Mail coupon for details.

SIMPLIFY PALLETIZING AND STACKING, SAVE SPACE with Republic Steel Pallet Racks. The savings of palletized handling now can be applied to bulky, uneven, odd-lot, and fragile materials. Republic Steel Pallet Racks make palletizing practical. Tubular steel supports adjust every six inches to handle palletized material of any height. Select single pallets from any level without restacking. Two-way entry permits loading and unloading from either side. Send coupon for complete specifications.



TRUSCON'S NEW COMPLETE STEEL BUILDINGS are low in cost, quickly erected, reusable. These new "Budget Buildings" by Republic's Truscon Division bring the cost of additional storage space down low. Simplified design permits fast on-site erection. No painting needed. Siding, roofing, doors, windows, hardware all included. Immediate delivery in widths 32, 36, 40, 44, and 48 feet... 12- and 14-foot heights. Lengths as long as you want them. Send coupon for bulletin covering complete facts.

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UNBREAKABLE MAINSPRINGS OF ARMCO 17-7 PH STAINLESS Help Make Westclox Watch Sales "Tick"

Properties of special Armco Stainless Steel add sales points, improve performance and simplify production of watches

By using Armco's high strength stainless steel instead of regular spring steel, Westclox, producers of the famous Big Ben, eliminated the possibility of rusting and subsequent breakage of mainsprings.

In addition to this important sales advantage, the excellent spring properties of 17-7 PH insure better time-keeping. Westclox also reports that springs are easier to fabricate. A thinner mainspring is used too, resulting in space-saving and more parts per pound.

SOLVES SPRING PROBLEMS

For springs of *any* kind, especially those exposed to corrosive conditions or elevated temperatures, Armco 17-7 PH provides unusual advantages. The mechanical properties and modulus of elasticity of hard drawn wire and extra hard temper strip are comparable to music wire and are much less affected by temperatures to 650 F than either 18-8 stainless or music wire. And with resistance to corrosion that is practically equal to Type 302 stainless, it offers a valuable combination of durability and strength.

Available in sheet, strip, plate, bar and wire, Armco 17-7 PH Stainless Steel is readily fabricated into coil, flat and power springs as well as spring washers and clips.

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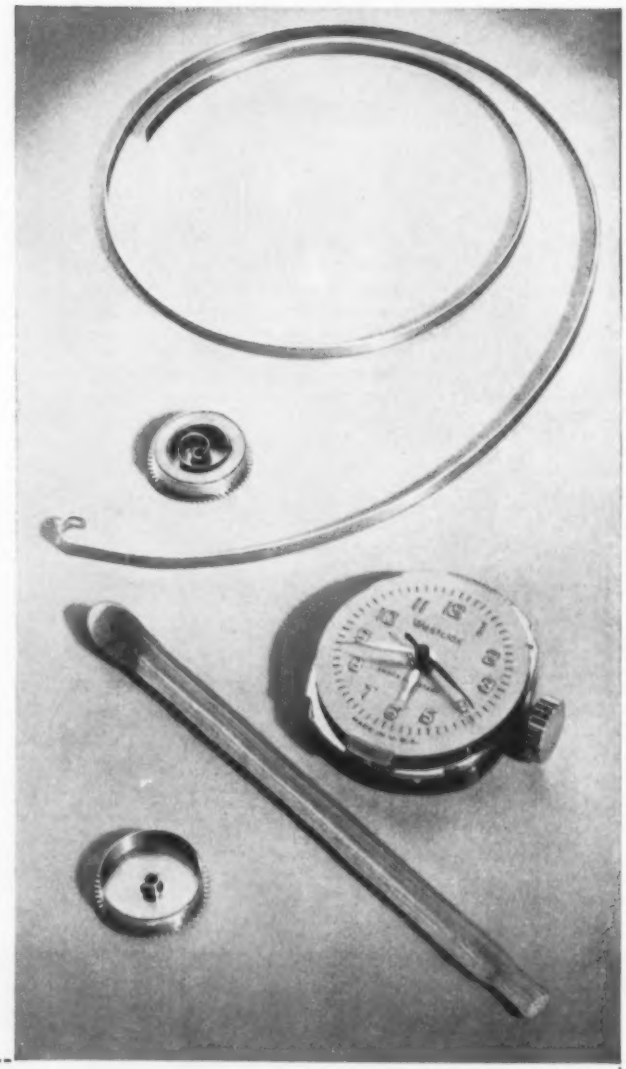

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CITY ZONE STATE

Strength Breeds Enemies But It Encourages Friends!

In the past few weeks the Administration has shown it has guts when many thought it had none. Naturally, what Ike does or doesn't do will find people on both sides of the fence. The latest move is no exception.

But talk is getting so complex and involved that main truths are being lost sight of. If anyone in his right mind remotely suggests that we are in the Middle East to protect Britain's oil, he is indeed naive. We may hear someone say that to believe otherwise is to be naive. But if there be among us those who are thinking up a nefarious or unworthy reason for our action they had better have a second thought.

We are locked in a titanic struggle with Communism and its slaves, its toadies and its special agents. Whether or not Nasser is a true Communist is beside the point. He is getting special help and training from them. They are also goading him on. Maybe not for oil. Maybe not for territory, but just to stir things up for the West. They can hope then to rake in their prize money at a later date—if it isn't too late for all of us.

Nasser has some of the earmarks of Hitler. He has said just what he is going to do and has used Goebbels-type semantics to drive home his arguments. All the crocodile tears spilled by Nasser and by Khrushchev are for the weak (or simple) minded. At no time has either lost sight of the truth that dictatorship cannot win and hold world power so long as there are strong free nations about.

Our intelligence on the Middle East left much to be desired. But when it did make enough sense for Ike to take action it was clear that the Middle East crisis was the handiwork of Nasser and his teachers in Moscow. To believe otherwise is to believe dangerously—and to believe otherwise is to pander to unreality.

We must leave our Boy Scout suits at home when we are fighting for our very lives in the years to come. The stakes in this game are not peanuts. To be namby pamby, to cross and criss-cross useless steps, and to show weakness will not help us or our friends.

To show we mean business—when we know we are honest and fair—does rejuvenate the friends we must have if we and they are to survive. It also makes strong enemies.

Tom Campbell

Editor-in-Chief

Want to cut costs on parts like these?

Here's how tracing will help you save

The simple, basic setup shown above handles nearly 300 different parts for a well-known manufacturer of drive line components. All work is performed on one Gisholt MASTERLINE No. 4 Ram Type Turret Lathe with a JETracer on the rear of the cross slide. Standard tools on the hex and square turrets are used to face, chamfer and reduce the stock while the JETracer finishes all diameters, steps, blends and radii. The 6⅜"-long, 2"-diameter stepped shaft (above at left) is typical and is completed in two operations with total f.t.f. time only 4.95 minutes.

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- Shorten setup and change-over time
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Gisholt has developed a complete line of JETracers for use with ram and saddle type turret lathes, automatic turret lathes and single-spindle chucking lathes. These include rear cross slide, turret and independent slide mounted units, single or multi-pass types. *All are designed to operate at full capacity of the machines to which they are applied, without limiting machine functions or restricting the use of standard tools.*

You'll want to see for yourself how the JETracer adds flexibility, speeds operations and cuts costs on standard and problem parts. Send the coupon today for your free copy of the new JETracer catalog, or call your Gisholt Representative for complete information.

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City..... *Zone*..... *State*.....

Plastics Dollar

Sir—I would appreciate receiving a copy of your article, "How to Get More For Your Plastics Dollar," published in the June 26 issue of The IRON AGE.

This article certainly helped bring me up-to-date on this fast-moving field and I am sure it will serve a useful purpose in my present duty as a manufacturing project officer. Many thanks in advance. — D. Wadsworth, Lt. USN Mfg. Dept., Naval Gun Factory, Washington, D. C.

Sir—I'd like to obtain ten reprints of the article in your June 26 issue entitled "How to Get More for Your Plastics Dollar."

It is an extremely well-written and interesting article, and I would like to distribute it to several departments in our company.—W. K. Metcalfe, Vice Pres.—Sales, J. O. Ross Engineering, Div. Midland-Ross Corp., New York.

Cost Planning

Sir—It would be appreciated if you will send this office three copies of the fine article on cost planning which appeared on p. 99 of your July 10 issue.

The writer again wishes to express his thanks for the good use to which your feature articles have been put over the many years in which he has read your publication. —F. Katz, Winpower Mfg. Co., Newton, Iowa.

Red Trade Embargo

Sir—R. W. Asquith's view in "Will U. S. Relent on Tools for Russia," July 10 issue is the most shortsighted I have ever heard.

He says: "Anything short of complete lifting of the embargo would be utterly useless. It remains one of the worst examples of shortsighted diplomacy . . . it has failed in its major purpose; it has not prevented Russia from building guided missiles and a huge jet aircraft fleet."

Mr. Asquith apparently doesn't understand how the Soviet economy functions. The "shortsighted diplomacy" of the U. S. "failing in its major purpose" is not responsible for the thinking of Russia as a "market" of semi-colonial character. The "shortsighted diplomacy" could not and never was intended to prevent Russia from building. The object was to slow down the process as far as possible.

I saw trade with the Russians in the twenties. Even then nobody in Europe was enthused about trading with them. It was well known they did not respect patent agreements or commercial ethics.

The embargo may be abolished because it has achieved its purpose. But it must stay in force in every technical field where we have a lead over the Reds. As for me, I believe the American viewpoint is much more "long-sighted."—Paul Meyer, Bay City, Mich.

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WELDING CLINIC

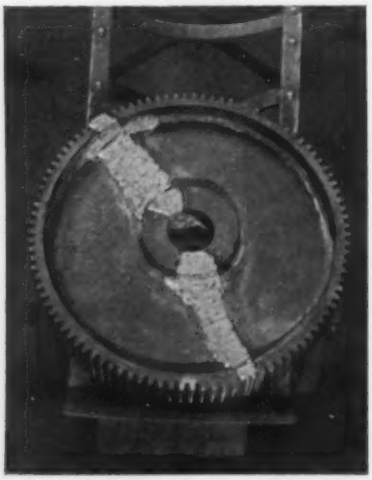
J. Imperati and R. F. Pulver, Welding Engineers
The American Brass Company, Waterbury, Conn.

Braze Welding repairs saved this cast iron gear—and 2 to 4 weeks' production time

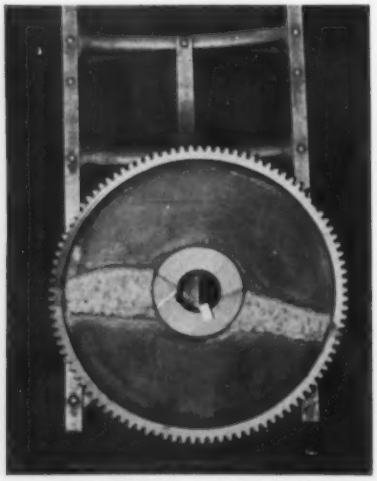
1. When a key came out and fell in the motor pinion of a big sheet mill flattener, this cast iron gear broke in half. Delivery on a new gear was 3 to 5 weeks. Braze welding repairs could return the machine to production in about a week.

2. To save production time, it was decided to repair by braze welding. The 30″ diameter gear with a 3″ gear face and 1″ thick solid web was prepared by chipping and grinding bevels on edges of the fracture from both sides. This took 11 man-hours.

3. The gear was preheated to 800 F with an oxypropane torch. Then the fracture was braze welded, and the damaged gear face built up to full diameter with Anaconda-997 (Low Fuming) Bronze Welding Rod. Total welding time, 14 man-hours.



4. After a period of slow cooling, the welded gear was ready for a trip to the mill's machine shop. Here it was trued up and new teeth were cut in the built-up bronze weld metal. This phase of the repair required only 15 man-hours.



5. The repaired gear on its way back to the sheet mill flattener in less than a week. The machine was reassembled and back in production in just one week for a total saving of two to four weeks of valuable production time.

Oxyacetylene braze welding with Anaconda-997 (Low Fuming) Bronze and Tobin Bronze*-481 Welding Rods is widely recognized as the easiest and least expensive repair method for cast iron. For full details, write for a copy of Publication B-13.

Free Technical Service. Anaconda distributors can help you select rod for most jobs. But if you have a special problem, American Brass Company specialists will be glad to help you. For this service—or a copy of the book—write: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont. 8800 Rev.

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Red China

Remember, before Pearl Harbor, how we used to laugh and laugh at the Japs in their efforts to imitate the West? Remember the story of the battleship that turned over because some Britisher had cleverly altered the plans to raise the center of gravity?

We may be behind the thought-parade here, but we believe a lot of Americans feel much the same now about the Chinese.

Next week's cover story may come as a shock to some of these people. In it you'll read how the Chinese Communists are developing a machine tool industry that may some day make them self-sufficient in this key area. And they propose to top the British in steel production.

All of which could still be sluffed off as Red propaganda if it were not for the fact that until recently we took the same dim view of Soviet steel and machine tool production claims. They turned out to be facts, not claims.

Whether we like it or not China is moving ahead industrially at a pretty good clip. Read next week's China story and see.

Propaganda

You have only to look at the advertising in this issue to realize that we Americans are very good at merchandising, advertising, and selling. Well, maybe there are a few ads that could be improved—but on the whole they represent a good propaganda effort suggesting new ways of making things better at less cost.

"Propaganda" is often thought of as something done by someone we don't like. But we checked Webster to see if good people can spread good propaganda. They can.

Which is why we get burned up when we hear important people say that Krushchev would use a Summit meeting as a propaganda gimmick. Let him try. What irritates us is the theory that only he can use such a meeting for propaganda. Why can't we do the same? With all the selling brains we have in the United States, why don't we turn it to our advantage by putting out some propaganda of our own? Why not take the offensive for a change, put some of our smart merchandisers to work on it?

Puzzlers

An old hermit, moving from one shack to another, was carrying a bag of corn and a canary in a cage. He was accompanied by a dog and a cat and leading a goose by a string tied around his neck.

Midway he came to a stream. It could be crossed only by means of a small canoe capable of holding only him and two of the five things he was bringing. This created a problem:

If he left the dog and cat together, they would stage a fight; if he left the corn and goose together, the goose would eat the corn; if he left the cat and the canary together, the cat would eat the canary. But he got over successfully and reached a second stream. Here also was a canoe but so small that it would hold only him and one of the five.

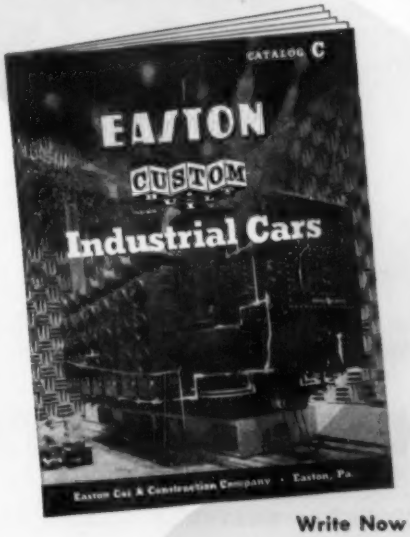
How did he arrange to get them all across both streams?

Jokelifters (Cont.)

We liked the satellite "report" Jack Paar recently read on his late evening show. There was a new baby moon in orbit, he told the audience. The only trouble: It was circling the earth three feet above the ground.

So, Paar warned, if you're driving late at night and see something on the wrong side of the highway, don't wait for it to dim its lights.

IDEAS for heavy duty materials handling



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IDEAS inspired by EASTON CATALOG C may save important time and money in your heavy handling operations.

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GPE.73.

COMING EXHIBITS

Western Packaging & Materials Handling Show—Aug. 11-13, Civic Auditorium, San Francisco. (Clapp & Poliak, Inc., 341 Madison Ave., New York 17.)

Chemical Show—Sept. 9-12, International Amphitheater, Chicago. (National Chemical Exposition, 86 E. Randolph St., Chicago 1.)

Iron & Steel Show—Sept. 23-26, Cleveland Public Auditorium, Cleveland. (Association of Iron & Steel Engineers, 1010 Empire Bldg., Pittsburgh 22, Pa.)

Western Tool Show — Sept. 29-Oct. 3, Shrine Exposition Hall, Los Angeles. (American Society of Tool Engineers, 10700 Puritan Ave., Detroit 38.)

Packaging & Materials Handling Show—Oct. 14-16, Coliseum, Chicago. (SIPMHE, 327 LaSalle St., Chicago 4.)

Metals Show—Oct. 27-31, Public Auditorium, Cleveland. (American Society for Metals, 7301 Euclid Ave., Cleveland 3.)

Plastics Show—Nov. 17-21, International Amphitheater, Chicago. (The Society of the Plastics Industry, Inc., 250 Park Ave., New York 17.)

MEETINGS

SEPTEMBER

National Petroleum Assn.—Annual meeting, Sept. 10-12, Hotel Traymore, Atlantic City, N. J. Society headquarters, Munsey Bldg., Rm. 958, Washington, D. C.

Steel Founders' Society of America—Fall meeting, Sept. 22-23, The Homestead, Hot Springs, Va. Society headquarters, 606 Terminal Tower, Cleveland 13.

The Material Handling Institute, Inc.—Joint industry fall meetings—Sept. 22-24, The Greenbrier, White Sulphur Springs, W. Va. Society headquarters, Suite 759, One Gateway Center, Pittsburgh 22.

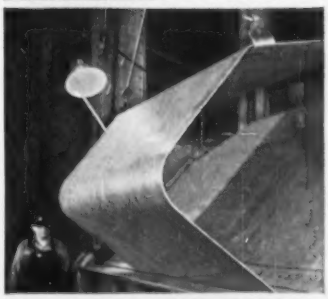
(Continued on P. 16)

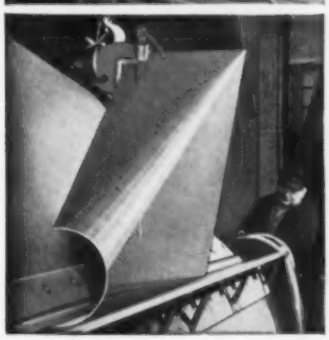
Bending Steel Plates for WELDMENTS?

do it economically with

CHICAGO® POWER BENDING BRAKE

(no dies needed)



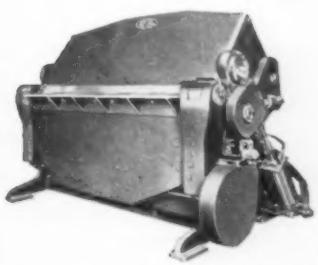


The accompanying illustrations give an idea of the versatility of the CHICAGO bending brake. No dies have to be changed or adjusted—no dies are used on these jobs. Yet, duplication is easily obtained on successive pieces. The machine is quickly adjustable for different thicknesses of material up to rated capacity. Automatic stop regulates the angle of bend. This, too, is adjustable to any degree of bend. The ease of changing from one job to another and the elimination of die costs make the CHICAGO bending brake the economical method for bending steel plates for weldments.

Many standard sizes are available with capacities for bending mild steel up to 12 feet by ¾ inch or 16 feet by ½ inch. Also many standard sizes in hand and power operated models for sheet metal.

BULLETIN P-55
This bulletin gives the details of how these and many other jobs are handled. Also complete description of the machine and specifications of the standard sizes.
Ask for a copy.

Front view of one of the heavy duty models of CHICAGO power bending brake showing the operation end of the machine.



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Hand and Power Brakes • Special Metal-Forming Machines

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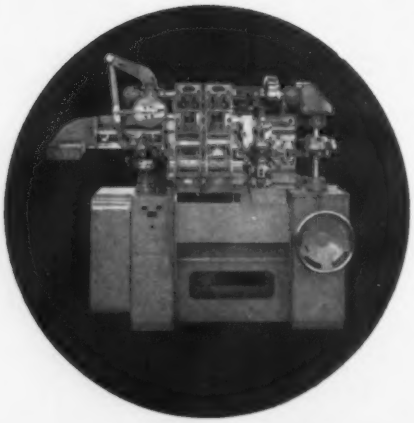
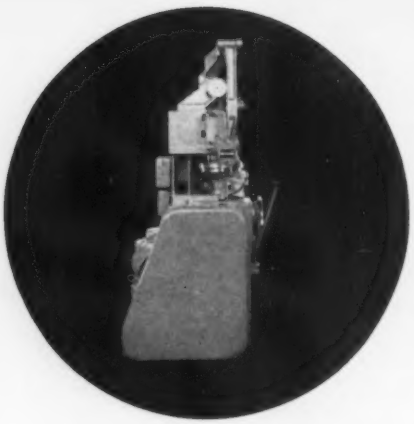
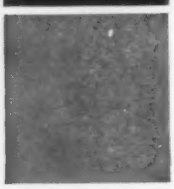


VERTICALITY = SETUP TIME / 2





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EXHIBITS, MEETINGS

(Continued from P. 13)

Air Moving & Conditioning Assn., Inc.—Annual meeting, Sept. 22-25, The Greenbrier, White Sulphur Springs, W. Va. Society headquarters, 2159 Guardian Bldg., Detroit 26.

Porcelain Enamel Institute — Annual meeting, Sept. 25-27, The Greenbrier, White Sulphur Springs, W. Va. Society headquarters, 1145 19th St., N. W., Washington, D. C.

The Electrochemical Society, Inc.—Semi-annual meeting, Sept. 28-30 and Oct. 1-2, Chateau Laurier, Ottawa, Canada. Society headquarters, 1860 Broadway, N. Y.

Pressed Metal Institute — Annual meeting, Sept. 28 - Oct. 2. The Cloisters, Sea Island, Ga. Society headquarters, 3673 Lee Rd., Cleveland 20.

OCTOBER

National Assn. of Sheet Metal Distributors—Fall meeting, Oct. 5-8, Marlborough Blenheim Hotel, Atlantic City. Society headquarters, 1900 Arch St., Philadelphia.

Truck Body & Equipment Assn., Inc.—Annual convention and exhibit, Oct. 6-8, Ambassador Hotel, Atlantic City. Society headquarters, 1616 K St., N. W., Washington, D. C.

Gray Iron Founders' Society, Inc.—National annual meeting, Oct. 8-10, Sheraton-Park Hotel, Washington. Society headquarters, 930 National City-E 6th Bldg., Cleveland.

The Wire Assn.—Annual convention, Oct. 13-16, Chalfonte-Haddon Hall, Atlantic City. Society headquarters, 543 Main St., Stamford, Conn.

American Machine Tool Distributors' Assn.—Annual meeting, Oct. 15-17, Sheraton Plaza, Boston. Society headquarters, 1900 Arch St., Philadelphia.

Rail Steel Bar Assn.—Semi-annual meeting, Oct. 20-22, Blackstone Hotel, Chicago. Society headquarters, 38 S. Dearborn St., Chicago.

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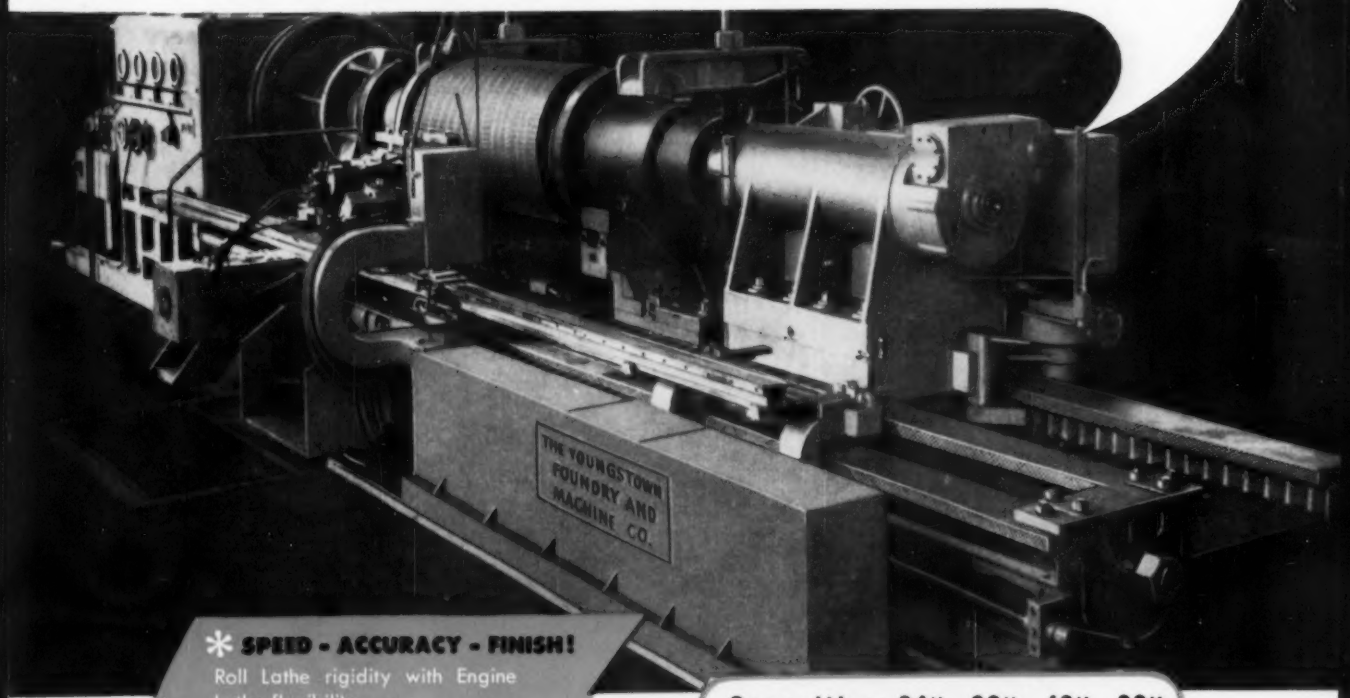

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Roll Lathe rigidity with Engine Lathe flexibility

*** NEW HYDRAULIC TRACER**
controlled automatically. Front mounted tracer and templet for operating ease and faster set-up

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Faceplate supported by extra large Timken roller bearings mounted on extra large torque hub to carry heavy radial and thrust loads

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designed for either single point carbide-tipped tools or regular roll turning tools

*** RUGGED HEAD STOCK!**
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Turn rolls better and faster with Automatic Tracer Control

Far ahead in design and efficiency, this new roll lathe has been developed to turn rolls better and faster . . . either on necks or centers . . . from the smallest bar mill roll to the largest back-up roll. Tested and proved in our own roll shop. Capacities to meet your specific needs.

The 48" roll lathe pictured has a speed range of 1.40 RPM to 81.1 RPM. Roll capacities: 18" minimum diameter, 50" maximum diameter, with 20'0" maximum length. Hydraulic ragging attachment can be furnished, as illustrated. Tell us your requirements . . .

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Preheat Billets in Glass

Ordinary scrap glass helps a new furnace speed heating of steel extrusion billets. Gas fired, the furnace reduces glass to a molten pool. As the furnace rotates, billets roll into the glass. Aside from descaling the billets, the glass coats them with a gas-proof layer to prevent further oxidation. The unit, first to be built in this country, promises large savings in fuel and maintenance.

Alloy to Boost Performance

Developed for jet engines, a nickel-base Ti-Al hardened alloy may boost performance 50 pct or more according to early data. In production by vacuum induction methods for the past five months, the new material permits operating in the 1800°F range. Jet parts are under test and a jet engine almost entirely of this alloy is to be given exhaustive service tests.

Strength in Powder Sheet

A new approach to the field of metal powder rolling produces a sheet material with two to three times the strength of conventionally produced sheet metals. It can be utilized in the full hard condition for alloy substitutes and in the softened condition for severe deep-drawing operations. It's said to be 25-60 pct cheaper than conventional sheet.

Improve Military Research

Central guidance for military research and engineering is on the way. Congress is ready to approve a research and engineering director in the reorganized Defense Dept. His job: to coordinate projects, wipe out waste, get better results for the research dollar. Direct research spending is up to nearly $2 billion a year. Congress wants a better product from an investment this large.

Stress Worker Training

On-the-job training for employees and apprentice programs are not being neglected during the recession, according to one source. Many firms are pushing ahead because they are looking ahead to skilled manpower needs after the slowdown ends and they recall how quickly worker shortages develop in periods of national emergency. In fact some firms are making men available to conduct refresher courses for vocational school teachers, bringing them up-to-date on the latest trends and techniques.

Hope from Structurals

New bookings of structural fabricators topped the 1957 level for the first time in June. The figure of 287,000 tons booked in June also bettered the 1957 monthly average. Bookings are still way below the 1956 average of nearly 400,000 tons a month, but they are climbing steadily.

Standby Economic Controls

Despite the Administration's reluctance to have any traffic with controls, there is more than an even chance that it will soon ask for standby legislation "just in case". The point: It's a tool which could be used if necessary. The argument of no controls in peacetime is now out the window, at least psychologically.

More Aid to Purify Water

Washington may shell out much more money to help industry purify its waste water. In the House, leaders like a plan to build $1 billion worth of sewage plants. Now, the government spends $500 million a year. Local communities will still have to put up 70 pct of the cost in matching funds.

For Liquid-Metal Reactors

Commercial production of very high purity tantalum metal is the result of a two-year research program. The new product is low in oxygen, carbon and other impurities which adversely affect melting and fabrication. High purity gives the new material unusual ductility and low hardness (60-65 Bhn). A 3-in. diam ingot can be reduced to 0.0005-in. foil without intermediate annealing.

it was a fully automatic forging operation... until we started to forge

Even the best automatic forging machines can be slowed down by one simple thing. The steel you forge.

Unless the steel is really uniform, you'll be interrupting production to change the setup. These readjustments take time, limit the availability of expensive equipment—until it's hardly automatic any more.

With Timken® steel you get uniformity down to the last ounce. We take extra steps to make our steel uniform from bar to bar, heat to heat, order to order. For instance, we use the industry's first magnetic stirrer. It distributes alloys evenly, works the slag constantly at a uniform temperature. And we eliminate guesswork by using the industry's first direct-reading spectrometer to insure more uniform grain size and chemical composition.

What's more, we treat each order individually. Right from the start, an order is processed with the customer's end use in mind.

Why not insure wide-open, fully-automatic operation with your machines? Specify Timken fine alloy steel. You'll get uniform results every time without paying a penny extra. The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable address: "TIMROSCO".

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Middle East Crisis Puts Spurs To Steel Market Comeback

With the steel market already strengthening, Mideast crisis adds urgency to steel buying.

It could mean significant lengthening to delivery time this fall.—By G. J. McManus.

▪ The Middle East crisis makes it more certain steel will be tougher to get in the fourth quarter.

The crisis has had little direct effect on steel buying so far, but it has applied more pressure to a supply situation that was already spring loaded. Steel shipments were due to bounce in the fourth quarter anyway. The Middle East flareup makes it more certain they will—and possibly more than the 30-40 pct than was expected.

Means Larger Wait—For buyers of steel a rise in mill operations from about 55 pct of capacity to 75 pct in the fourth quarter would mean a longer wait for delivery. No one expects a shortage this year. But customers won't be able to call up Thursday and get delivery of structural steel in the next week.

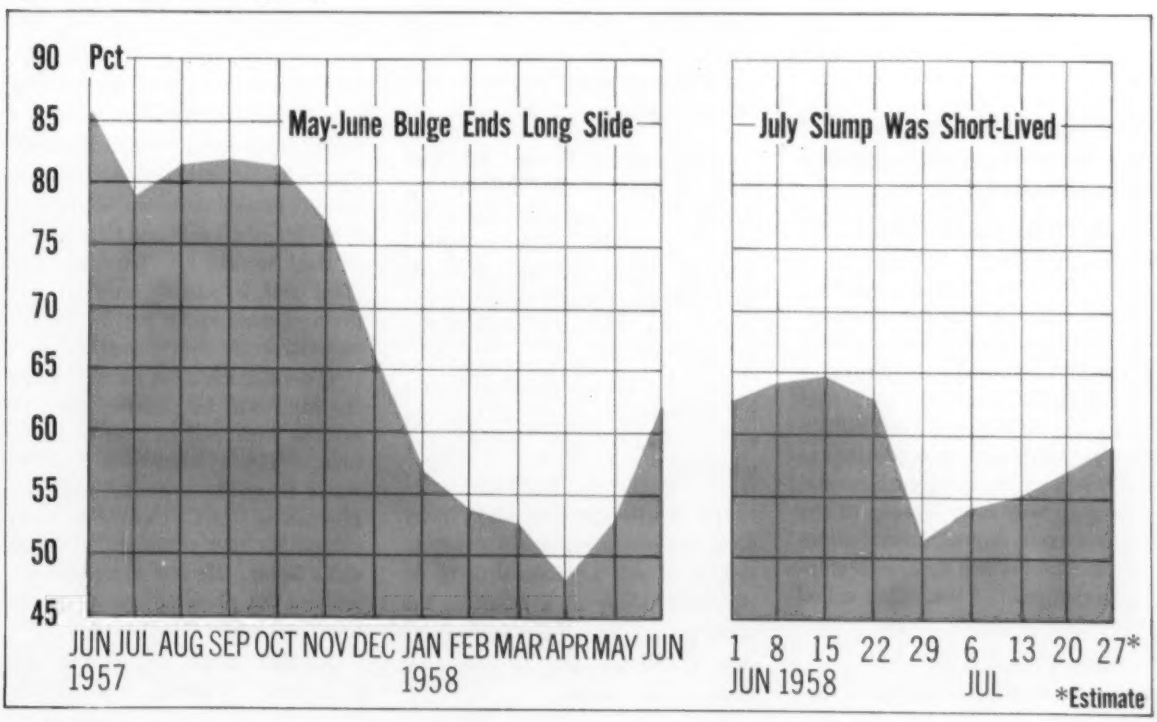
Overall, deliveries figure to lengthen one to two weeks in the fourth quarter. For sheets, plates, and structurals, the extension could be greater; production of these products could hit 80 pct of capacity before the year ends. Deliveries could lengthen to one month minimum time.

All this assumes the Lebanon crisis drags on at its present temperature and does nothing more than spark a steel recovery that was already due. On the second point, some mills say the reaction of buyers has not shown itself yet.

Changing Outlook—Despite these

Will Mideast Speed Steel Comeback?

Operating Rate, Pct of Capacity



How Rising Ingot Rate Will Stretch Steel Delivery Promises

Operating Rate	Present 50–60 pct	Fourth Quarter Deliveries Minimum 60–70 pct	Probable 70–80 pct	Crisis Over 80
CR Carbon Sheet	2–4 wks	2–4 wks	4–5	4–6
HR Carbon Sheet	1–2	1–2	3–4	4–5
CR Carbon Strip	3–4	3–4	5–6	5–6
HR Carbon Strip	1–2	1–2	3–4	4–5
HR Carbon Bars	1–2	1½–2	2–3	4–6
Heavy Plate	1–4	1–4	2–4	*4–6
Light Plate	1–2	1–2	1–2	4–6
Oil Country Goods	Stock	Stock	Stock	4–10
Linepipe	1–8	1–8	2–8	4–10
Buttweld Pipe	Stock	Stock	Stock	Stock
Std. Structurals	1–4	1–4	2–4	4–8
CR Stainless Sheet	2–4	2–4	3–7	4–6
CR Stainless Strip	2–4	2–4	3–7	4–6

and similar reports, many astute observers feel there has been a profound change in the outlook of buyers.

"The whole psychology has changed," says one. He points to rocketing scrap prices and steel stocks that have hit new highs for the year. "Individual purchasing men will tell you they look for no spurt in demand. At the same time, they admit they are advising management to beef up inventories a little. The shift in thinking is very slight but it will have a tremendous cumulative effect."

Won't Take Much—Steel economists agree it will take only a small change in buying habits to produce a major steel spurt. They say inventories are dropping below the point that was considered rock bottom.

If the economists are right, steel shipments will jump one million tons when plants start buying as much as they are using each month. This gain will come on top of the fall seasonal improvement. From July to October last year, steel shipments jumped 12 pct. Cold-rolled sheet climbed nearly 45 pct.

Strong Combination—Last year's seasonal bump came despite inventory cutbacks and in the middle of a long term steel decline. This year inventory levels, seasonal forces, and the general economy should all be moving in the same upward direction. Adding the Lebanon spark should speed the process.

As far as direct defense business goes, the Lebanon action will mean little to steel mills at its present tempo. For one thing, defense spending was already climbing before the Marines landed.

Not a Tonnage Factor—For steel mills the trouble with modern war is that it is not a tonnage operation. The nine months ending in March saw the defense program pay out $1.2 billion for research and development but only $33 million for combat vehicles.

Only if Lebanon develops into a full brushfire action, would there be new emphasis on conventional weapons.

Oil Angle—In the other likely area, oil producers have given no sign they will increase drilling or pipeline activity as a result of the Arab threat. But there are reports that producers are re-examining plans in both areas.

Oil producers indicate they have no intention of giving up their stake in the Middle East. Both from a standpoint of supply and cost, one oilman says the Arab fields are vitally needed.

"It costs about $1 a barrel to find oil domestically and $1 a barrel to lift it," he says. "On top of that you have transportation with crude oil selling for $2.60 a barrel, where does that leave you?"

Domestic Drilling Cut — He pointed to the depletion of California fields and to the declining return to U. S. wells generally. In the Middle East, wells will produce 1000 bbls a day; an average American well yields under 100 bbls a day.

This situation, plus bulging oil stocks, has brought cutbacks in domestic drilling activity from 2500 rigs last year to a current figure of 2000. Producers are gradually working off stocks of seamless pipe at this reduced level. They say they will be doing some tonnage buying in the fourth quarter and one pipe mill has warned its sales force against underestimating the comeback.

Plate and Structurals—Plate and structural mills feel there has been no war buying. However, their bookings did pick up right after the landing announcement.

No immediate lengthening of plate and structurals deliveries is likely. Heavy mills are working 8 to 10 turns a week and have plenty of slack to take up. However, one plate and structural producer expects operations to hit 80 pct of capacity in the fourth quarter.

If production does hit that level, the mills will be running over 15 turns a week and be into premium time. "That's when you have to watch them like a hawk," says one purchasing agent. Deliveries could extend 30 days overnight, says the same buyer. He has sharpened his lookout but plans no special inventory building.

Another point of interest for plate users: A strong sheet surge in

the fourth quarter could take strip mills off light plate. This would immediately put a sizable tonnage back on plate mills. It could lengthen deliveries of both light and heavy plates.

Sheet Push Coming—Chances for a sheet push in October seem good. Sheet mills are predicting an 80 pct operating level in the fourth quarter. If last year's pattern applies, shipments of cold-rolled sheet will jump nearly 50 pct from now to October.

The way it looks now, the automotive tonnage could come in without much advance warning. The mills were still waiting word with August only a few days off.

Could Change Fast—In this situation a sudden automotive plunge could extend orders at least temporarily. Even an orderly rise in the operating level figures to lengthen deliveries. Order-hungry steel sales people are reluctant to concede this. But when pinned down, they will admit 20 points would make a difference in their philosophy.

"Right now, the big thing is to get an order—any order," says one. "At 75 pct of capacity, we might think twice about some of these rush requests."

Apart from changing attitudes, statistics indicate the mills can ship only about 800,000 tons a month on a rush basis. Applied to current business, this limit allows about 20 pct rush orders. Applied to an operating level of 75 pct, it permits only about 12 pct rush delivery. If you accept this arithmetic, the average delivery time has got to increase as operations rise.

Another point to consider is that scare buying, like price buying, may not be identified when it starts. "It might come in the form of orders from sewing machine makers," says one steel man.

Reprints of this article are available as long as the supply lasts. You may obtain a copy from Reader Service Dept., The IRON AGE, Chestnut & 56th Sts., Philadelphia 39, Pa.

How to Rate Vendor Performance

GE purchasing specialist offers easy system of rating vendor performance.

It's not a cureall, but helps avoid some possible pitfalls.

▪ Do you have a systematic method of rating your vendors on the basis of service, quality of product, and selling price? Or do you rate them on bid price and general recollection of past performance?

Charles B. Adams, manager of purchasing service for General Electric Corp. in New York, outlines a method that automatically rates vendors on all three of these important factors.

Numerical Rating — In effect, each vendor is given a numerical rating which tells the GE buyer at a glance how well the firm he is doing business with rates in all three departments.

Like the old fashioned school report card, the system is based on 100 points. A vendor who is excellent in product quality (no complaints from GE quality control) gets 40 points.

How to Score—For good service, based largely on his ability to deliver his product to the buyer on schedule, he can earn up to 25 points. If his price is the lowest bid price given the buyer by several vendors, he gets another 35 points.

Point rating begins when GE buyers and GE quality control men go over the vendor's past performance to see how he stacks up against his competition. If 90 pct of his deliveries have been on time, he gets 90 pct of the maximum 25 points. If quality control reports that 100 pct of the items delivered have passed inspection standards, he gets the full 40 points for quality.

Price Rating—Pricing varies more frequently. If the lowest offering price to the buyer is 93¢ per unit of an article he wishes to purchase, the seller who offered the low bid gets a full 35 points.

Higher bids are divided into the low bid. A bid of $1.16 would establish 93¢ as about 80 pct of the higher figure. So the $1.16 bidder would get 80 pct of the 35 maximum points, or 28. Total points for each bidder are then totaled for all three categories: service, quality, and price. The high point man gets the business.

Advantages—While the system entails paper work, GE buyers point out that it is generally applied to "A" class items, items representing the larger dollar outlay. It is not an ironbound ruling, either.

But it is simple, reduces the natural tendency to grab at a very low bid from an unreliable supplier, and certainly would tend to boost supplier performance in every phase.

Retirement Fund Bill

Persons who run their own businesses may be better able to set up retirement funds, under a plan making headway in the House.

Ways and Means Committee approved a proposal to defer until age 70 payment of taxes on income for retirement programs. The House is expected to endorse this measure.

But the plan is unlikely to become law this year, even if it reaches the White House. The Administration opposes it as "special" tax relief.

As approved by the Ways and Means group, the self-employed could defer tax payments on as much as $2,500 a year.

Curtain Wall Opposition Fades

Industry Campaigns Hard, More Cities Revise Codes

The list of communities which accept metal curtain wall buildings is growing.

You can expect to see a lot more of this type construction in days ahead.—By G. G. Carr.

▪ Building code revisions continue to spur metal curtain wall construction. Until recently, antiquated code restrictions loomed as a major obstacle to curtain wall growth. But a forceful and well-planned educational program by interested industries brought major revisions across the country.

This week, the committee on building research and technology of American Iron and Steel Institute will report that over 75 pct of all U. S. building codes now make provision for curtain wall construction.

Big City Progress — The AISI committee, a prime mover in code revision, points out that widely- followed codes such as Basic Building Code, National Building Code, Southern Standard Building Code, and others now provide for modern panel wall construction.

Progress is good in big city codes, too. These codes often lagged because of local conditions and pressures. But the committee finds in a new tabulation of 100 large cities that 78 pct now permit unprotected noncombustible curtain walls or are studying legislation permitting them.

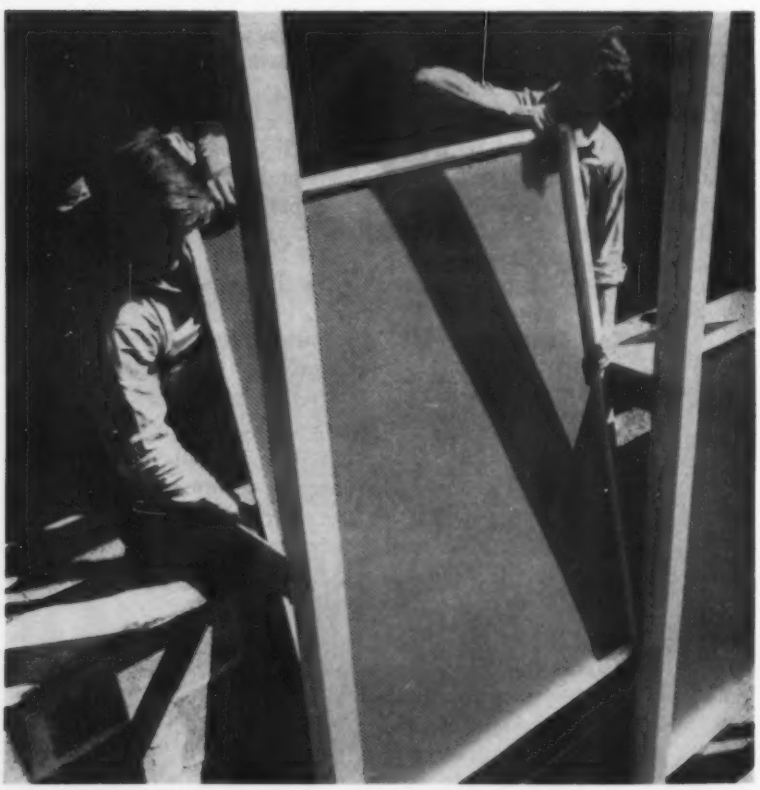
Bugaboo Licked—Center of the code hassle has been whether metal panel walls need masonry back-up for fire protection. Masonry interests have painted lurid pictures of the hazards of unprotected metal. But careful studies have shown that masonry is unnecessary under most conditions.

Latest convert is Philadelphia, which last week amended its building code to allow curtain wall construction. To builders, architects, metals producers, and metalworkers, this is hot news. Curtain wall buildings are a golden market.

Many Selling Points — Advantages of curtain walls are well known to builders and architects. They are quick and easy to erect, often with substantial savings. Thin walls offer more usable space. Maintenance is held to a minimum. Non-load-bearing walls eliminate tons of dead weight, offer great flexibility in design.

Leading contenders in the curtain wall market are aluminum and stainless steel, although bronze and porcelain enamel also have considerable following. Galvanized and other carbon steels find substantial uses as panel sandwich back-ups and other interior applications. In addition, galvanized panels are used as exteriors for industrial buildings and, occasionally, one and two-story offices and storefronts.

Tally Coming — No one apparently knows, at present, just how much metal is going into curtain walls or how many such buildings there are. But National Assn. of Architectural Metal Manufacturers, Chicago, has a survey on the subject in the works.



FAST, SIMPLE, AND ECONOMICAL: A lightweight stainless steel curtain wall panel is lowered easily into place by two workmen. Architectural panels are a fast-growing market for metalworking industries.

How Small Is Small Business?

Being defined as a small business is highly important to a firm seeking government contracts. Under Federal procurement rules, small firms are in line for preferential treatment. The question is, where does smallness end and bigness begin?

IT ALL DEPENDS:

The government has finally decided on a flexible definition. In a new law that makes the Small Business Administration a permanent agency, Congress approved the following policy:

Where the number of employees is used as one of the means of identifying a small business, the number may vary from one industry to another.

WHO DECIDES:

The SBA Administrator is given authority for writing the definition of small business in individual cases.

Generally, the policy is expected to bear out the earlier definition that a small business is an independently-owned firm with not more than 500 employees.

BUT THERE ARE EXCEPTIONS

For instance, a company which dominates its field may not be termed small even if it has no more than 500 employees. And a ruling that a concern is small in one field of competition does not apply in others, if the firm is in more than one competitive field.

Tax Aid Coming for Small Firms

A new tax write-off policy will give little business its long-looked-for break.

Buyers of machinery are allowed to deduct 20 pct of cost the first year.—By R. M. Stroupe.

▪ Faster tax write-off benefits of particular value to the small manufacturer are to be written into law soon.

Safely through the House of Representatives, the bill to provide these benefits is specially designed to aid small business. The bill is favorably viewed in the Senate and is expected to pass without difficulty. President Eisenhower's signature enacting the measure is predicted.

Savings Large—Total tax savings realized by small companies in the first full year under the new law will be around $260 million. The greater part of the savings—about $175 million — will come from eased depreciation allowances on items bought for industrial or commercial use. [For reaction of machine tool industry, see page 41]

A buyer of new or used machinery or equipment will be able to write off 20 pct of the cost in the year of purchase. He is entitled, also, to take the usual first-year depreciation allowance. Remainder of the cost is to be depreciated under rules now in effect.

Ceiling $10,000 — This new write-off policy is to cover tangible personal property, bought since Dec. 31, 1957, with a useful life of at least six years. Real estate purchases will not qualify for the write-off.

A maximum investment of $10,000 a year will qualify under the new policy, except in cases where a husband and wife file a joint tax return. In such cases, the limit is raised to $20,000 a year.

To Stimulate Expansion—In preparing the tax relief measure, the House Ways and Means Committee noted that small businesses depend heavily on depreciation reserves for expansion funds. But under present rules these reserves are just large enough for companies to maintain current positions.

The company that is enabled to write off one-fifth the cost of a major productive asset in the year of buying can use its reserve for expansion, the committee reasons. The lawmakers also foresee greater investment in small business under the special write-off plan, for capital can be recovered faster before earnings are taxed.

Government Won't Lose — Tax postponements, not tax deductions, are provided in the write-off plan. While the first-year revenue loss involved in the total bill is computed at some $260 million, tax returns in the long run should more than compensate for the loss, because of business growth.

Besides the depreciation feature, the tax revision bill covers stock and operating losses, estate taxes, and earnings credit. One of these provisions raises the limit on ordinary loss deduction from stock losses.

COMMITTEE 39: Perry L. Houser, Metal Cutting Tool Institute, gives U. S. view on machine tool standards.

U.S. Lags on World Standards

Some U. S. firms are losing foreign business because of new international standards.

Industry is warned this will become common unless it presents its case to world standards committee. — By F. J. Starin.

▪ A major U. S. cast iron pipe maker figured it had a large order from Venezuela about in the bag. It fell through.

The reason: Specifications were based on recommendations of the International Organization for Standardization (ISO), which are different from the American Society for Testing Materials code.

U. S. standards people concede the loss of one order doesn't put a company or an industry in trouble. But they warn that unless some U. S. industries take more of an interest in world standards, cases like this will become more commonplace.

Need Common Ground — The ISO is an attempt by standards groups of the 40 leading industrial nations of the world to break down trade barriers between nations with common standards.

The work, most of it still to be done, is handled by 87 technical committees.

Majority Rules—On agreement of the majority of a committee, the proposed standard is submitted to the national standards groups. Objections are sent to the committee. When a majority of the national standards groups agrees, a standard becomes an official recommendation of the ISO.

The U. S. is represented by the American Standards Assn., which is set up as nothing more than an administrator and clearing house. It depends on the initiative and work of the different U. S. industries, and is only as good as the time and money American companies are willing to spend.

Little U. S. Interest—American Standards Assn. spokesmen say point blank that many U. S. industries are not taking enough interest in world trade. They warn that once a standard unfavorable to a U. S. industry is set, it is time consuming and difficult to change.

The record seems to bear out the ASA contention. Of the 87 categories being studied, U. S. industries are participating in only 43. The United Kingdom, West Germany and Belgium are presenting their ideas and voting in 82, 83, and 61 committees, respectively. Even Russia now has active participation in 58 committees.

Even in Metalworking—The U. S. record doesn't look any better in the fields directly concerned with metalworking. There are 25, and we are participating in nine. We are notably absent in discussions on steel, zinc and zinc alloys, mining, gears, surface finishing welding, pipes and fittings, etc. And there are some on the fringes, like building construction and packaging for frozen foods, which U. S. industry ignores.

Does lack of U. S. membership really make a difference? A member of the copper and copper alloy committee, of which U. S. is a sponsor, claims techniques and standards in the United Kingdom, for example, are very different than in this country.

Plant Tours Can Do Many Jobs

But Each Tour Should Have a Specific Objective

A recent poll indicates plant tours do pay off.

But they must be planned and handled correctly.

Some top men tell how it's done.—By G. G. Carr.

▪ Plant tours can be a high road to better customer, community, and industrial relations.

In a recent Opinion Research Corp. poll 65 pct of plant managers called the practice a "most essential" good will builder. Inland Steel calls tours an industrial relations "bonanza."

Many Goals—Objectives of the plant tour range from civic duty such as cooperation with schools, to selling key customers on product quality. Timken Roller Bearing Co. used tours to squelch union "sweatshop" charges.

But plant tours can't do all jobs at once. American Iron and Steel Institute, whose members have been running plant tours for years, stresses the importance of selecting specific objectives for each tour.

Blueprinting tour objectives, says the U. S. Chamber of Commerce, is major insurance that visitors will remember concrete points.

Tips on Tours—Here are some tips on planning tours from some of the most successful exponents:

An objective usually suggests the audience. There may be several groups in an audience, but there should never be more than one objective. For instance, local officials, and cultural leaders are usually anxious to attend with members of the community. The presence of the press attracts officials farther up the governmental ladder.

Whatever the audience, top brass participation is a must.

A committee can do the best job planning a tour.

A Few Musts — Tours can be simple or elaborate, but should include a few basics. First should come a brief orientation, with movies if available. The tour route should be plainly marked, and signs should explain what guests are seeing.

Guides should be identified and appropriate to the group taking the tour. It's usually safe to have department heads handle their own bailiwicks.

Cost—How about cost? There's no quick answer. Successful tours have ranged from 50¢ to $2.00 per person.

What happens to productivity during a tour? In many cases it has actually gone up. Workers take pride in demonstrating their skills to visitors.

INSIDE STORY: High school students watch through tinted safety glass as an openhearth is charged. Student tours have been made an integral part of U. S. Steel Corp.'s community relations program.

King-Size Ingot for Rockets and Missiles

▪ Aluminum Co. of America believes this is the largest aluminum ingot of its type ever cast.

The huge cylinder is alloy 2014, and was produced at Alcoa's plant at Lafayette, Ind.

Customer — It was made for Thiokol Chemical Corp., a leading maker of rocket engine propellants. The ingot is destined to be fabricated into parts for the equipment used to make the propellants.

Alcoa says the new parts could result in greatly improved rocket and missile performance.

Statistics — The ingot weighs 24,000 lb, is 205 in. long, and 38½ in. in diam.

Senate Likely to Up Defense Spending

The Senate, urged by its Appropriations Committee, is likely to give the Defense Dept. some $40 billion to spend in the year that began July 1.

This would be $1.2 billion more than the Eisenhower Administration asked. It would top the House-approved military budget by $1.6 billion.

By service, the bill before the Senate does the following:

Air Force—To get $18.1 billion, compared with $17.3 billion voted by the house.

Navy—To get $11.4 billion. The house approved $11 billion, plus authority to transfer certain funds.

Army—To get $9 billion, plus authority to transfer $325 million from available funds. House voted $8.7 billion, and authority to transfer $425 million.

Aircraft Engine Test

A huge new engine test cell has been built by the Columbus, O., division of North American Aviation, Inc.

The project cost about $1 million.

The main entrance doors are 60 ft wide, 22 ft high to admit an entire aircraft directly to the cell. Engines with a thrust to 50,000 lb can be tested.

Social Security Bill

It probably will be up to the Senate to decide whether social security taxes on employers and employees will rise on Jan. 1.

A bill to increase the tax rate and add a flat 7 pct to payments to beneficiaries seems assured of House approval. The measure also would raise to $4800 the amount of annual income to be taxed. Present maximum amount is $4200 a year.

Administration opposition to the bill is not expected to prevent the House from passing it.

A higher tax rate on payrolls would boost to $120 a year the maximum amount extracted from employee pay. The employer and employee then would be paying $25.50 more apiece in cases where the employee gets at least $4800 a year.

Maximum to be collected from the self-employed in 1959 would be $180, an increase of $38.25.

New Arab Steel Mill

The United Arab Republic's first integrated iron and steel works has begun production near the former spa town of Helwan, Egypt.

Initial capacity is listed as about 265,000 tons. Plans call for expansion to 500,000 tons at "a later stage."

The plant has two blast furnaces, three basic bessemer converters, two electric furnaces, a two-high reversing blooming mill, a three stand, two-high blooming and finishing mill, a three high mill for heavy and medium plate, and a two-high stand for sheet.

Tariff Agreement

Both houses of Congress are now in substantial agreement with President Eisenhower on extension of tariff-cutting authority. The final form of the reciprocal trade bill is not far from what Congress was asked by Mr. Eisenhower.

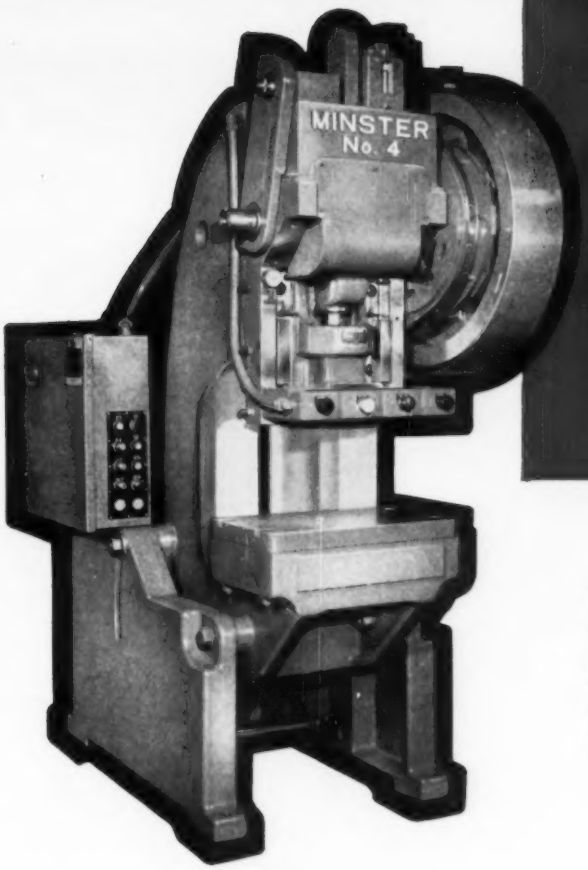
The Senate reworked the House-passed version of the new reciprocal trade law. It eliminated what the State Dept. had referred to as "objectionable features," including a provision for the Congress to override White House vetos of higher tariffs recommended by the independent U. S. Tariff Commission.

Under the new bill, tariffs may be cut by an average 5 pct a year, for four years.

U. S. and German Firms Titanium Partners

Titanium Metals Corp. of America, and Deutsche Edelstahlwerke, a German stainless steel maker have formed a jointly owned company for the production of titanium mill products.

The new company, Continental Titanium Metals Corp., will be headquartered in Luxemburg. But initial production will be in the German partner's plant at Krefeld, W. Germany.



You Helped Design The Improved

MINSTER O.B.I.

You, as a press user, have often told us what features *you* wanted in an O.B.I. to improve *your* press operations. Most of the design changes in this improved Minster O.B.I. are based on *your* ideas, desires and demands.

CENTRALIZED CONTROL CABINET CONVENIENTLY LOCATED . . . NEVER INCLINES

For convenience and better operation, control cabinet mounted on leg remains vertical when press is inclined; is subject to less operational shock and easier to maintain.

NEW LEG DESIGN PROVIDES MORE WORKING SPACE

Square-cut legs give operator more room, a comfortable position in front of press. Inclining mechanism in leg and use of movable spacer rod provide more free space under press for tote pans or conveyors.

NUMBER	4	5	6
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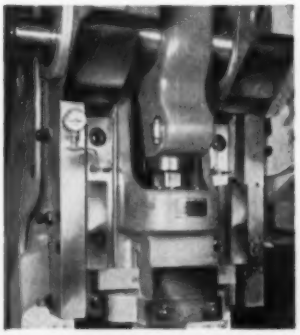
Frame closed in on top and front completely encloses bearing caps, thus providing better distribution of work forces. Connection cover keeps press cleaner—no oil drops hit operator.



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Tail stock type connection screw locking. Increased connection strength and screw support.

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Inclining the press takes less time and labor with ratchet-wrench-operated mechanism located in press leg *at normal working height*. Die changes are made quickly in vertical position with greater safety, more accurate alignment and less die change-over time.

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Carmet tool holders and Indexable inserts make machining with carbides practical for any size plant. Match a Carmet tool to your requirements—or let Carmet give you engineering assistance in setting up a complete tooling program—and watch your production climb as costs go down. Inquire today.

• *Allegheny Ludlum Steel Corporation, Carmet Division, Detroit 20, Mich.*

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Expanded to 16 pages, this latest edition contains specifications of Carmet tool holders and Indexable inserts, replacement parts for tool holders, and information on choosing the proper carbide grade for the job.

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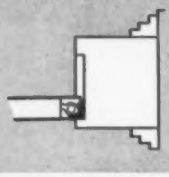
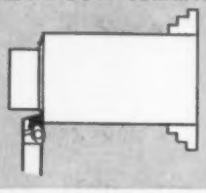


STYLE **SBTR** HEAVY-DUTY TURNING



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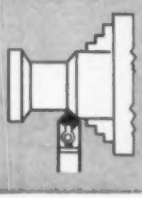

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Jesse Daugherty

Idea Man Speaks for Automation

The era of the pushbutton machine shop is here, says Mr. Daugherty.

All that remains is to train more technicians and sell industry on its advantages.

▪ Jesse Daugherty, winner of the American Society of Tool Engineers' 1958 Engineering Citation, coined a new word that sums up his professional calling. The word is "electronomation."

"Electronomation," Mr. Daugherty says, "is the substitution of electronic information handling for the routine skills of today's machine operators." The development of this concept in his own mind has taken a lifetime.

Shop Background—After finishing his formal education at the University of Cincinnati more than 30 years ago, he started out as a machine operator—a job he held for two years. With some practical shop experience under his belt, he was hired as an instructor at the Ohio Mechanics Institute.

Afterward, he came to the Cincinnati Planer Co. as a toolmaker, and rose successively to toolroom foreman, tool designer, machine designer, chief engineer, and finally vice president and works manager. When Cincinnati Planer was acquired by Giddings & Lewis Machine Tool Co., Fond du Lac, Wis., in 1948, Jesse Daugherty advanced to staff vice president—engineering, the position he now holds.

The Days Ahead — It's Mr. Daugherty's belief that the impact of electronics on the machine tool industry will revolutionize small lot production.

JESSE DAUGHERTY: Small lot production will be revolutionized.

"The time is here when the push of a button will initiate production of one part or 100 parts," he says. "The only difference will be in the running time per part and the few minutes needed to insert cards or tape."

The slowness with which industry is accepting electronically controlled machines on a large scale is due mainly to the lack of trained engineers and technicians, explains Mr. Daugherty. He predicts that this problem will gradually be remedied.

An Inventive Mind — Jesse Daugherty gets his biggest kick out of creative engineering. From his mechanical mind have come ideas for such things as a skin and spar milling machine, an automatic car wheel turning machine, a precision planer type milling machine, and the Numericord System, a magnetic tape—continuous path control. He holds 15 U. S. patents and has eight applications pending.

"Since setup time is no longer a major factor in the production cycle, inventories can be cut substantially with electronomation," he points out.

He adds that electronically controlled machines can also bring about large savings in scrap and are "probably the only real answer to the problem of competition of foreign machines."

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In the modernizing, revamping, or up-dating of production facilities—several approaches are available. Components can be changed. Alterations can be made. New ideas can be adapted to existing equipment. New units can be added.

The proper choice can make a difference in production yield and the expenditure. The choice requires good thinking and proper application of ideas . . . by people who know their business.

We are working with many companies right now on idea modernization for butt weld, seamless, stretch reducing, continuous galvanizing, continuous annealing, electrolytic tinning, stainless processing, silicon processing, cold drawing, rubber, plastic and chemical.

A discussion of your ideas and plans may show how you can modernize at moderate cost.

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Business Passes July Crisis

Although the Mideast flareup put an end to any doubts, the recovery was under way before the Marines landed.

Now, the purchasing philosophy has changed from inventory control to maintaining a safe level.

■ You may think it's a little premature, but it isn't. With growing speed, the recovery is coming on and the recession is fading.

The bottom of the downswing now appears to have occurred in April, with a good start upward in June. The expected July decline did occur, but it was less serious than expected and the climb was on its way again as the month progressed.

July Critical — Particularly encouraging is the fact that the uptrend was slowly, although a little unsteadily, under way before the Mideast crisis hit.

July might be labeled the critical month. If that's so, the crisis is past. After a severe drop of most business activities in the first week of the month, manufacturing picked up consistently throughout the remaining weeks.

Good Recovery—As a result, the Federal Reserve Board Index of Industrial Production, which rose three points to 130 in June, will not take the full drop that was expected. Overall business output for the month was lower than June, but the rate of production in most businesses was close to the June level as the month ran out.

Remember, most of this was without the effects of the Mideast crisis. Some of the sharpening of new orders in late July is attributable to the Mideast crisis, although not all purchasing agents moved that fast.

July production, with its encouraging comeback, is due largely to forces that were in progress even before Lebanon.

Tool Orders Up—Machine tool orders are a good example of this. Not only were orders up significantly in June, but there are indications that new business continued to pick up in July, a month where a seasonal sag is the usual case.

Another encouraging note about the machine tool business: Cancellations are down significantly from the $3.2 million rate of January of this year to about $1 million in June. As a result, backlogs are not declining.

Fears Not Justified—The steel industry also took an expected drop in operations in the first week of July. But instead of holding at the low point, operations have picked up week by week and show every indication of keeping it up steadily through August and into September.

When July started, most business men were a lot less optimistic privately than they showed outwardly. Many were actually fearful that the expected seasonal decline for the month would become relatively permanent. It's now clear that their fears were not justified.

PA's Change Buying Tactics

Protection Buying — And now, the effects of the Mideast are being felt. One first reaction is an entirely new purchasing philosophy, in the alert companies at least. The purchasing agent trend now is toward buying, not inventory control. It isn't what you would call scare buying, but it is at least protection buying.

It's protection against possible shortages, real or enforced by controls, and protection against higher prices, which now are inevitable.

Upward Price Pressures—Prices continued to climb through the bottom of the recession. This completely frustrated those who could not reconcile higher prices in a depressed economy. Those who held out for lower prices did find them in certain volatile areas, but not in most basic materials.

Now price pressures are building up even more strongly and most businesses are moving cautiously along the price front. For one thing, costs will continue to climb, in wages, materials, and equipment. The new defense budget and other government spending will inevitably keep inflation creeping.

Public Opinion—On the other hand, other pressures, including public opinion, tend to keep prices from accelerating.

To this extent, the delay in raising steel prices has been misleading, if it has given the impression that prices are not to advance. These pressures have been responsible for the delay, but it can't last and most people realize it.

That's why the PA's philosophy has changed. The cost of carrying a safe inventory, which seemed so important a month ago, has now faded when compared with the danger of being caught without one.

A Preview of the New 1959 Cars

The Basic Philosophy Continues Another Year

Even if automakers wanted to change course, they were caught with their dies ordered.

GM leads in overall changes, with a basic body and all-new lines.—By H. R. Neal.

▪ If, as critics insist, the automakers aren't giving the public what they want in the way of transportation, then 1959 models are doomed from the start.

On the other hand, if sales improve with the introduction of new models, automakers will be able to claim they know what the public wants and are giving it to them; that 1958's miserable sales showing can be blamed on a "lack of confidence."

At any rate, when sales of 1958 model cars failed to go over, it was already too late for automakers to do much about their 1959 models. The dies may not have been cast, but they were at least on order.

Biggest Changes at GM—General Motors, having completely changed its cars over the past two years, is going to do it again this year. Only this time all makes will be changed at the same time. In previous years major changes for Chevrolet and Pontiac followed the others by one year.

Ford Motor Co. has concentrated its major efforts on its name carrier—Ford, which gets a new body and sheet metal. Revisions are due for the others, but not nearly as extensive as its volume car.

Chrysler Corp., still a year away from the big change, has done most with Plymouth, redressed the others. It will take some solace, but probably few sales, from GM which will enter the "fin" car field in a big way this year.

The Chevrolet—Chevrolet, which might be called something of a success for 1958, will be out with an all-new package for 1959. It will be lower by an inch than present models, but still about the same height as Ford and Plymouth.

The trend toward more glass continues, too. The windshield is compound curved, at the top as well as the sides. Backlight or rear windows will curve around the sides and carry well forward.

Another trend of recent years is continued: emphasis on rear end styling. Chevrolet will sprout "wings." From unfounded tips (top fender edges) the lines will slope toward the center of the trunk lid. The lower portion of the rear fenders will feature a convex bulge. Tail lights will resemble teardrops on their sides, with the

Automotive Production

WEEK ENDING	CARS	TRUCKS
July 26, 1958*	86,003	16,385
July 19, 1958	85,533	16,187
July 27, 1957	119,857	21,798
July 20, 1957	117,205	21,993
TO DATE 1958	2,513,242	499,695
TO DATE 1957	3,793,720	660,480

*Preliminary Source: Ward's Reports

The 1959 Lineup in Brief

Chevrolet—Entirely new body, one in. lower. More glass, rear end "wings" and other emphasis on rear end styling. Headlights lower and entirely new front end approach.

Ford—All new body, but an "evolutionary" change. Massive grille, return to round tail lights. Front light treatment similar to Thunderbird. New automatic transmission.

Plymouth—Not an all new body, but significant changes on all body metal. More emphasis on fin styling, now characteristic of all Chrysler lines.

Buick—Will have definite fins, canted headlights similar to Lincoln.

Oldsmobile—New body line all GM cars. Will lose much of its bright trim, headlights evenly spaced horizontally.

Edsel—Retains vertical grille and gull-wing rear end treatment.

Cadillac—Although it also has an all-new body, changes will be less radical than other GM lines, staying with traditional Cadillac styling.

Dodge—Re-worked rear end, but retaining fins. All new grille.

DeSoto, Chrysler, Imperial—Changes confined to "facelifting" type, since nine of Chrysler Corp. cars have all-new bodies.

Rambler—Substantially the same car, but with re-styled rear end. Station wagon in "American" series will be added.

Roebling Tire Bead Wire: Packaged for Maximum Benefit

The problems eliminated by this unique reel-less core packaging system are manifold. Loads are palletized two cores per pallet and may be stacked two or three high. This, plus the fact that you need not accumulate empty reels means storage space requirements are cut to *less than half*. You do away with all freight and handling costs on reels, the bother and expense of "bookkeeping" returnable reels, and the freezing of money in reel deposits.

This is typical of Roebling's advanced packaging methods—that makes handling Roebling high-quality wire so much easier. For details on this efficient Roebling Tire Bead Wire packaging method, or information on other types of Roebling wire, write Wire and Cold Rolled Steel Products Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

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HORSE HEAD PRODUCTS

apex toward the center, and just above the rear bumper.

Pontiac, Buick and Olds— Pontiac's concave sculpted rear quarter panels will be abandoned in 1959. Instead, rear quarter panels will have a convex sculpted look. Headlight clusters will be separated, resulting in more widely spaced pairs.

Buick will have definite fins—just hinted at in 1958 with caps on the fenders. Headlights will be arranged similar to those in the 1957 Lincoln—one over the other, but canted.

Oldsmobile will do an about-face and dispense with much of its bright trim. Headlights will be evenly spaced across the front of the car, doing away with the idea of "pairs" of lights.

Cadillac — Cadillac becomes a kindred car with Chevrolet this year as GM switches to the single body concept. But don't expect them to be the same size—inside or out. Actual interchangeability is limited in application and enough body stampings differ to make a big difference in size and interior space. The new body will also get a new covering, but Cadillac owners like the idea of a slower revolutionary change.

Ford — Like Chevy, Ford will have a completely new body and sheet metal. But the evolutionary change from the 1958 model is apparent. The front end will be dominated by a massive grille. Rear end treatment will be characterized by a return to the round tail lights which in recent years became something of a trademark. The new lights will be plenty large, lowered to a point just above the rear bumper as on Thunderbird.

Ford's big mechanical change this year will be a new automatic transmission to replace the present Ford-O-Matic. A lighter weight, more easily manufactured transmission, Ford will claim it also offers improvements in economy of operation. Compound wraparound windshields will be offered, matching Chevy.

Edsel, Mercury and Lincoln— Edsel will step down from the high-price class and concentrate on its low-medium priced, more popular series. At least one of the names of its two upper class series is expected to be dropped. One thing that won't be dropped; the vertical grille. The gull-wing rear end theme will remain also.

Mercury will make enough sheet-metal changes to announce that it is the 1959 model. Wrap-over-and-around windshields will increase Mercury's front glass area 61 pct.

Lincoln's sheet metal will remain the same as for this year but new trim will distinguish the new from the old. Following "off-year" change, tradition, Lincoln will get a new grille and tail lights.

Plymouth and Dodge—Plymouth is working on the third year with its "three years ahead" styling. With Chrysler Corp.'s styling philosophy committed to fins, Plymouth will serve to prepare the public for what's ahead in 1960 by emphasizing even more its rear fin styling. Taking the lion's share of Chrysler's revamp money, virtually all sheet metal on the Plymouth will be new—fenders, hood, roof and rear deck, but largely through a network of present dies.

Dodge has reworked its rear fenders, but still retains the fin-on-fin styling. Other skin changes will be enough to enable identifications as a new model Dodge. A new grille will be done in aluminum rather than stainless steel.

De Soto, Chrysler and Imperial —De Soto will have a sloping new hood and front fenders, grille, bumpers and rear deck lid. Rear fenders will virtually remain the same with new trim.

Chrysler will share the same assembly line with De Soto this year (at the Chrysler plant), consequently its appearance will be almost identical — except for bumpers, grille, tail lights and trim.

Imperial gets a plant of its own this year (former De Soto) plus changes to the front end. Several roof treatments will also be available, utilizing bright metals for interest.

THE BULL OF THE WOODS

WHAT? YES, READ OFF TH' SPECIFICATIONS TO ME--
GO RIGHT AHEAD, DOC-- THIS WON'T INTERRUPT ANYTHING!
TO SAVE TIME, HE HAS TH' DOC COME HERE TO CHECK UP AND SEE WHAT TH' TROUBLE IS!
WELL, THERE IT IS--RIGHT THERE! THEY DON'T NEED NO TEST TUBES AN' STUFF!
THE MALADY
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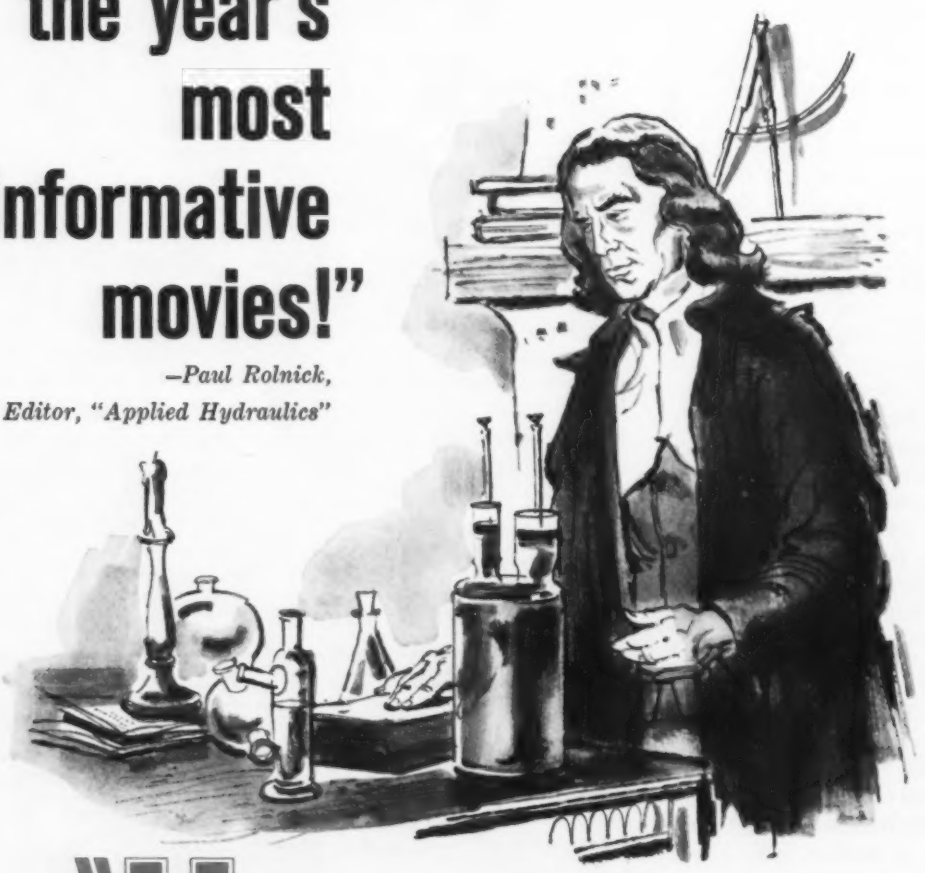

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LUBRICATION IS A MAJOR FACTOR IN COST CONTROL

Export Embargo to Reds Is Eased

Machinery, Other Products, Come Off Prohibited List

Curtailed embargo throws Red countries open for export of many manufactured products.

Lists of items that now can be shipped should be available shortly.—By G. H. Baker.

■ It will soon be legal to ship some so-called strategic goods (including certain types of machines and machine tools) to the U.S.S.R., to Red satellites, and to Red China.

A collective embargo on shipments to Communist countries—imposed by the U. S., by Western European nations, and by Japan—has been largely scrapped. In its place, these Free World nations have drawn up new and greatly shortened lists of goods whose shipment to Communist countries is still forbidden.

Lists Being Prepared—The principal types of items remaining on the embargo lists are military supplies and atomic equipment. Nearly all of the so-called war-supporting items, such as machinery, vehicles, and textiles, have been taken off the embargo lists.

Detailed explanations of the action are now being drawn up by the State Dept. for the benefit of exporters, and a list of the permitted items, plus procedural directions, will become available soon.

Big Changes—Formerly, the Free World nations classified for export purposes all their export goods in three separate lists. Shipment to any Communist country of items in the first list—military supplies and nuclear - fission equipment — was banned. Export of items in the second list was permitted in limited quantities. Export of items in the third list was permitted without restrtictions, except government notification was required.

These three lists are now scrapped. Two new and greatly-abbreviated lists have replaced them. The first list carries items whose shipment is either banned or limited as to quantity. Approximately two-fifths (about 80) of the items formerly listed have been removed.

The second list, which is confined to so-called semi-strategic goods, names items no longer subject to quota restrictions.

Military Wants Continuing Authority

Here's further evidence that the Pentagon regards the cold war between the U. S. and the U.S.S.R. as a permanent institution:

Military chiefs have recently sent word to the Congress that they want perpetual authority to negotiate procurement contracts without having to call for bids.

The Defense Department's authority to circumvent laws calling for bids on contracts is contained in the so-called First War Powers Act, which was enacted early in World War II. This contract authority, contained in Title II of the act, has been renewed several times since first enacted.

The Pentagon now says it sees no reason to keep on applying for renewal of the law every few years. It wants on a permanent basis the authority to select its suppliers and to negotiate with them privately. This authority includes not only the right to negotiate with selected contractors, but also the authority to advance payments to contractors.

Business Pickup Encourages GOP

Outlook Brighter—The improvements in the business picture cheer Republicans; they figure their election chances are greatly improved.

Government barometers of business health have been edging up lately, and the outlook is for further improvement.

Better Fourth Quarter — In recent weeks significant gains have been registered in steel, residential housing, total U. S. employment, retail sales, personal income, and total U. S. industrial output (as measured by the Federal Reserve Board.)

Fourth quarter activity should be even stronger, particularly if the 1959 model automobiles (on the market in late September) capture the public's imagination and pocketbooks.

Stumbling Blocks—Will this upturn in production, sales, and employment help Republican candidates in the November elections? Normally, the answer should be yes. But there's an undercurrent of fear in Republican circles that the tide is running against them.

Recession, lack of a meaningful foreign policy, and Sherman Adams' poor judgment are named as major stumbling blocks in the path to victory.

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USS United States Steel

AMERICAN STEEL WAREHOUSE ASS'N.

Coast Steel Mills Expect Upturn

Predict Steady Pickup in Orders After August

"Third quarter will be low point in our shipments," says Jack Ashby, Kaiser Steel vice president.

He and others see gains in fourth quarter and after with sheets, shapes, and rebars most active.—By R. R. Kay.

■ "The worst is over. Business should continue to improve from here on out." That's the consensus of Farwestern steelmen checked by The IRON AGE.

They've been studying their sales charts and order books. And they feel much better about the over-all outlook for the balance of 1958 than they did at the beginning of the year.

Kaiser Optimistic—"Based on the historical pattern, Kaiser Steel expects its operating rate will continue at a higher level than the steel industry nationally." So says Jack L. Ashby, Kaiser's vice president and general manager.

"Indications are that the third quarter will be the low point in our mill shipments. We expect a slight turnup in the fourth quarter and a substantial pickup in the first six months of next year," he adds.

A Brisk June—In line with the national experience, Farwestern mills enjoyed a brisk pickup in June. Hedge buying on the expected July 1 price hike that didn't occur sparked it.

None of the top executives is surprised at the fall-off in sales that followed. One mill, confiding its "order books for July are down from last month," quickly adds: "but not as much as we thought they'd be."

Fast Deliveries—In the present quiet market mills are able to promise their customers rapid delivery.

Hot-rolled sheet is available in 3-4 weeks, cold-rolled in 4 weeks. Users of heavy plate and linepipe can count on shipments in 4-6 weeks.

Hot-rolled bars are listed at 2-3 weeks with cold-rolled at 1-2 weeks. Standard structurals are quoted at 4 weeks for delivery.

Slow Climb Ahead—Steelmen on the Coast pretty much agree. One top official won't predict any "sharp improvement — no big upsurge." But he thinks orders will pick up after August "and build up to the end of the year except for those items in which there is a contrary seasonal influence."

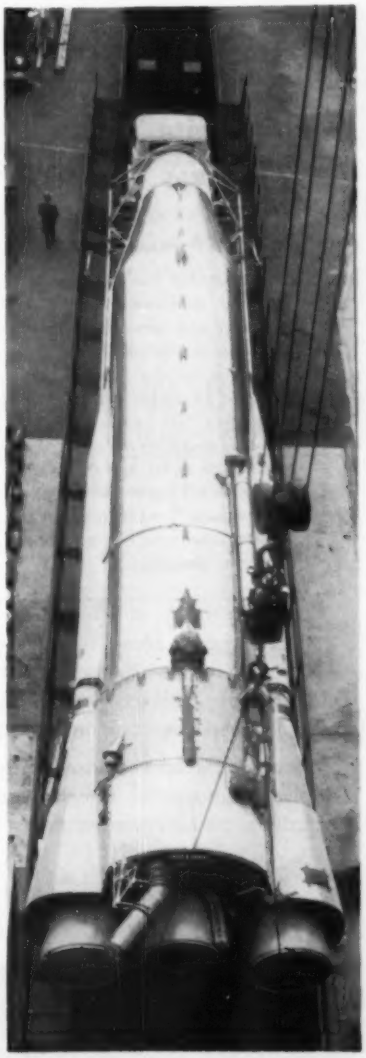
This executive feels "the best sales improvement will be on light flat-rolled products." Bars, plates, and other heavy products probably will continue "at current levels."

Another steelman points out that a large volume of Farwestern-made products depends on the construction industry. He sees continued fairly strong demand for structural shapes and reinforcing bars up to the end of the year. Then inclement weather will probably put a damper on building.

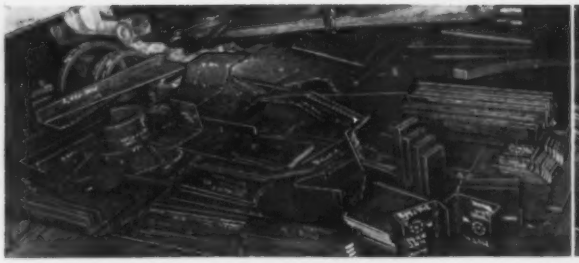
Tinplate Strong — Kaiser's Mr. Ashby emphasizes that demand is mixed—different for each product. While pipe is off a lot, tinplate is holding strong.

Another major mill explains why the tinplate outlook is good. "Farmers have boosted production. The crop forecast is better this year than last. Canners' carry-over is low. So we expect at least a 5 pct hike in tinplate sales this year over 1957."

Atlas Adds Punch



THIRD ENGINE: New third engine (at center of thrust section) will give Atlas ICBM range of over 6000 miles.



Some of the thousands of varied parts formed on the Steelweld Press. These involve beads and curves of every description in many plate thicknesses. Bars of heavy cross-section, usually requiring a bulldozer, are formed into semi-circles for gear rims and similar uses.

800 Tons of Plate Formed Monthly

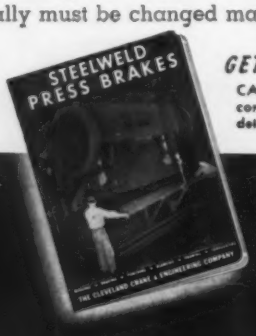
STEELWELD PRESS *Produces* Infinite Variety of Curves and Bends

This Steelweld Press is rated at ½"x14'-0" mild steel. With the 24-inch bed and ram extension at each end, it will bend plate that can clear by the 18-inch deep throat to 18'-6" long. Two cross shafts with foot pedals are provided for operating the press. The lower shaft is for normal operation while the upper shaft brings the reversing flywheel into action to back the ram off the work whenever desired.

EVERY month some 800 tons of plate of all thicknesses to one-half inch is formed with bends and curves of every description on a Steelweld Press. The machine is in operation nine hours a day.

Since parts formed are produced in very small duplicate quantities, the dies and machine settings usually must be changed many times during a day. Because of the ease with which Steelweld Presses can be set up, the operators can do this quickly and easily.

Steelweld Presses offer so many advantages that we urge you to write for the catalog below and get all the facts on them. Hundreds of these machines are now in use for bending, forming and punching operations of every description.



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New Tax Plan Could Help Sales

But Some Contend It Doesn't Do Enough

Bill passed by House gives tax break on first $10,000 of any income-producing equipment.

It still falls short of type of action that has been asked by NMTBA.—By E. J. Egan, Jr.

▪ Are you in the market for a certain new or used machine tool? A tax revision bill just passed by the House aims to make it easier for you to buy it.

Here's how it would work. On the first $10,000 you invest in any kind of income-producing equipment after December 31, 1957, you'd get a tax break.

Depreciation Terms — For the first year you owned the item, you could (1) depreciate 20 pct of its cost; (2) take your usual first-year depreciation allowance on the remaining 80 pct. If you file a joint tax return, the limit is $20,000 instead of $10,000.

The bill (H.R. 13382) is called the "Small Business Tax Revision Act of 1958." Aside from the faster tax-writeoff feature, it has several other points designed to help small businesses (see p. 23). It's now pending in the Senate, where approval seems likely. The President is also known to favor the measure.

Sales Booster?—Sponsors of the Act say the bigger depreciation allowance will cut Government tax revenue about $175 million in the first year of operation.

Ludlow King, executive vice president of the National Machine Tool Builders' Assn., hopes the Act will spark machine tool sales. But he doesn't think it goes far enough in offering a tax break to industry.

Industry Plan — NMTBA has been urging: (1) Straight 5-year tax write-offs as a short term anti-recession measure; (2) shorter, more realistic write-off spans for machine tools as a long-term aid to industrial growth.

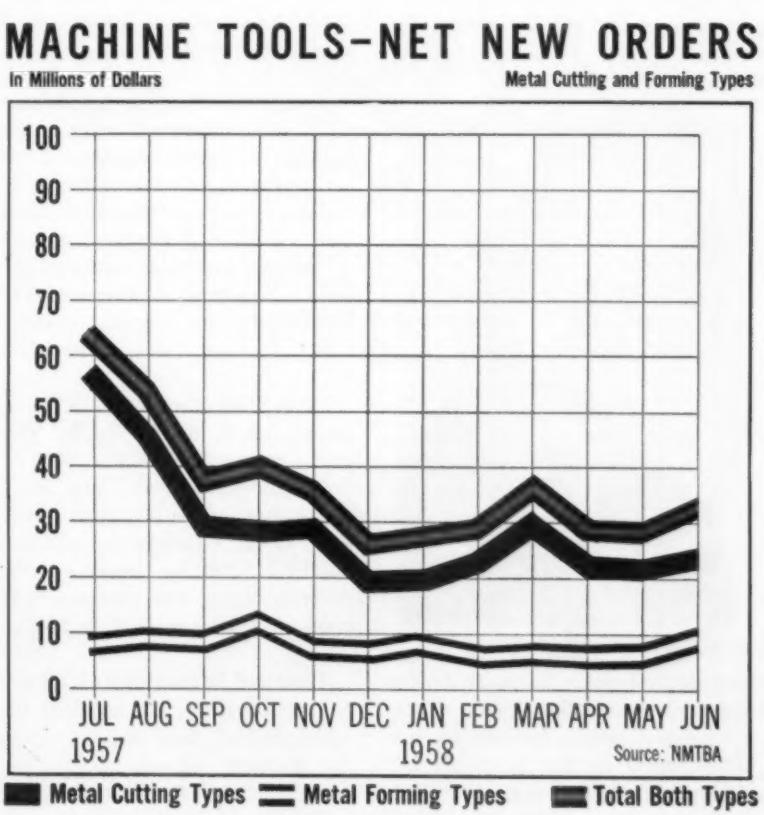
As for the estimated $175 million revenue loss to the Treasury, Mr. King said: "It won't cost the Government anything. Uncle Sam isn't giving business a penny. The faster write-off just shortens the time it takes for a business to get back its investment and show a profit.

Still too Small—"Full taxes then have to be paid on that profit," he continued. "If tax rates are still higher when that time comes, the Government could get more revenue in the long run."

June Orders Climb

New order totals for the U. S. machine tool industry angled upward in June. Orders for metal cutting types added up to $23.5 million compared to $22 million in May. And metal forming types chalked up a gain of almost 50 pct, jumping from $6.1 million in May to $9.1 million in June.

Builders hope the June figures will signal a slow but steady climb out of the doldrums.



INDUSTRIAL BRIEFS

Short Haul—The general offices of U. S. Steel Export Co., subsidiary of U. S. Steel, have moved to 100 Church St., New York. Since 1908, headquarters of the Export Co. had been located in the Hudson Terminal Bldg., 30 Church St., where the Company was among the first tenants.

Controlled Feeding—Blaw-Knox Co., Pittsburgh, has received an order for three more ladle additions feeders, to be installed at the Ashland, Ky., plant of Armco Steel Corp. The feeders will be used to make additions of specific amounts of ferroalloys at controlled rates of feeds.

For Nuclear Power—A contract for $1.2 million was awarded to The Griscom-Russell Co., Massillon, O., by the Power Reactor Development Co., Detroit. It is for the design and manufacture of three unique sodium-metal heated steam generators and special tube bundles. They are for the Enrico Fermi Atomic Power Plant at Lagoona Beach, Mich.

HONORED: Frederick O. Hess, president of Selas Corp. of America, will receive the Walton Clark Medal of Franklin Institute for his development of new processes for the industrial use of gas.

Ceramic Service—The Ceramic-Metal Assemblies Corp., Pittsburgh, is now engaged in the development and production of ceramic-metal assemblies at its new manufacturing plant in Latrobe, Pa. The company was formed to offer engineering and manufacturing services in metallized ceramics, vacuum pressure type ceramic to metal seals, and various other assemblies utilizing these components.

Pakistan Power—A $2 million contract for construction of two hydraulic turbines for use in a new East Pakistan hydro-electric power plant has been awarded to Eddystone Div., Eddystone, Pa., of Baldwin-Lima-Hamilton Corp. In addition to the turbines, governors for the turbines will be built by B-L-H Pelton Div., San Francisco.

Linde at Linden — Linde Co., Div. of Union Carbide Corp., is now operating a new plant at Linden, N. J. for high-purity hydrogen. Linde designed and built the plant on land leased from General Aniline and Film Corp., which will supply crude hydrogen for processing at the Linden plant.

Things to Come — In August, U. S. Steel Corp. will erect a new building for electromechanical development at its research center in Monroeville, Pa. The corporation's future plans call for increased use of instrumentation, process and materials handling mechanisms, and automatic control in steel production.

First With the Most—What is considered to be the largest generator ever ordered will be built by Westinghouse Electric Corp. for a new station of the Arkansas Power & Light Co. Westinghouse will also build a 325,000 kw turbine to drive the generator. The generator will boost output by more than 30 pct.

Food and Metalworking—Chemetron Corp. has acquired the Allbright-Nell Co., Inc., Chicago manufacturer of machinery and equipment for the meat packing and allied industries. Allbright-Nell will be operated as a subsidiary and will coordinate its production and sales activities with Chemetron's Girdler Process Equipment Div. of Louisville, Ky.

Oxygen Assist—The Granite City Steel Co. has brought into production a large oxygen generating plant built by Air Products, Inc., Allentown, Pa. The increased use of oxygen is one of the means Granite City Steel is using to raise the annual steelmaking capacity of its openhearth furnaces to a new high, scheduled to be reached in 1959, of 1,584,000 tons.

Caribbean Cruise—Airfloor Co. of California, Inc., is establishing a metal stamping affiliate in San Juan, Puerto Rico. New operation, Airfloor Co. of P. R. Inc., will make hollow steel forms for use in construction. The metal forms are inserted between floors or walls to enclose heating or air conditioning equipment.

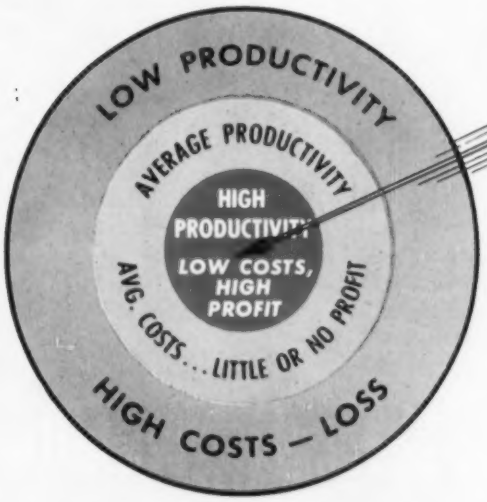
Adds Furnaces—Hevi-Duty Electric Co., Milwaukee, has acquired the furnace business of Eclipse Fuel Engineering Co., Rockford, Ill. This gives the firm a new line of fuel fired heat-treat, forging, and melt furnaces. It long has been a major maker of electric heat-treat furnaces.

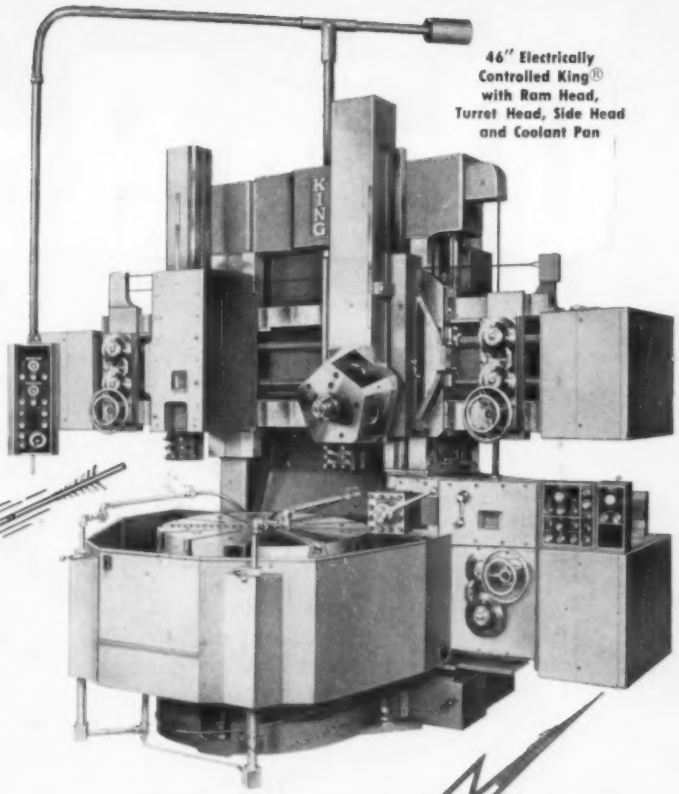
Business With AEC—The U. S. Atomic Energy Commission has awarded a contract to ALCO Products, Inc., for the development of sodium-cooled heat transfer equipment for nuclear power plants. The contract was one of three let under the program by the Chicago Operations Office of the AEC.

Road Service—The Dow Chemical Co.'s Magnesium Technical Service and Development Group has established a field-office technical-service organization. Aim of the new program is to station technicians closer to magnesium users. Field men will provide technical service to magnesium users in fabrication, finishing, design, foundry practice, forging and metallography.

IF YOU DON'T HIT THE "BULL'S EYE"

...You Can't Win the Game!





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Full electrical control cuts manipulation time to a bare minimum in both set-up and operation. Increased horsepower and expanded feed and speed ranges cut machining time and provide greater job versatility. Extra-heavy rugged construction and simplified design assure exceptionally low maintenance cost.

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- **COMPLETE ELECTRICAL CONTROLS**—conveniently located on movable pendant station and machine-mounted panel.
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- **DIALS FOR PRE-SELECTION OF FEEDS AND SPEEDS.**
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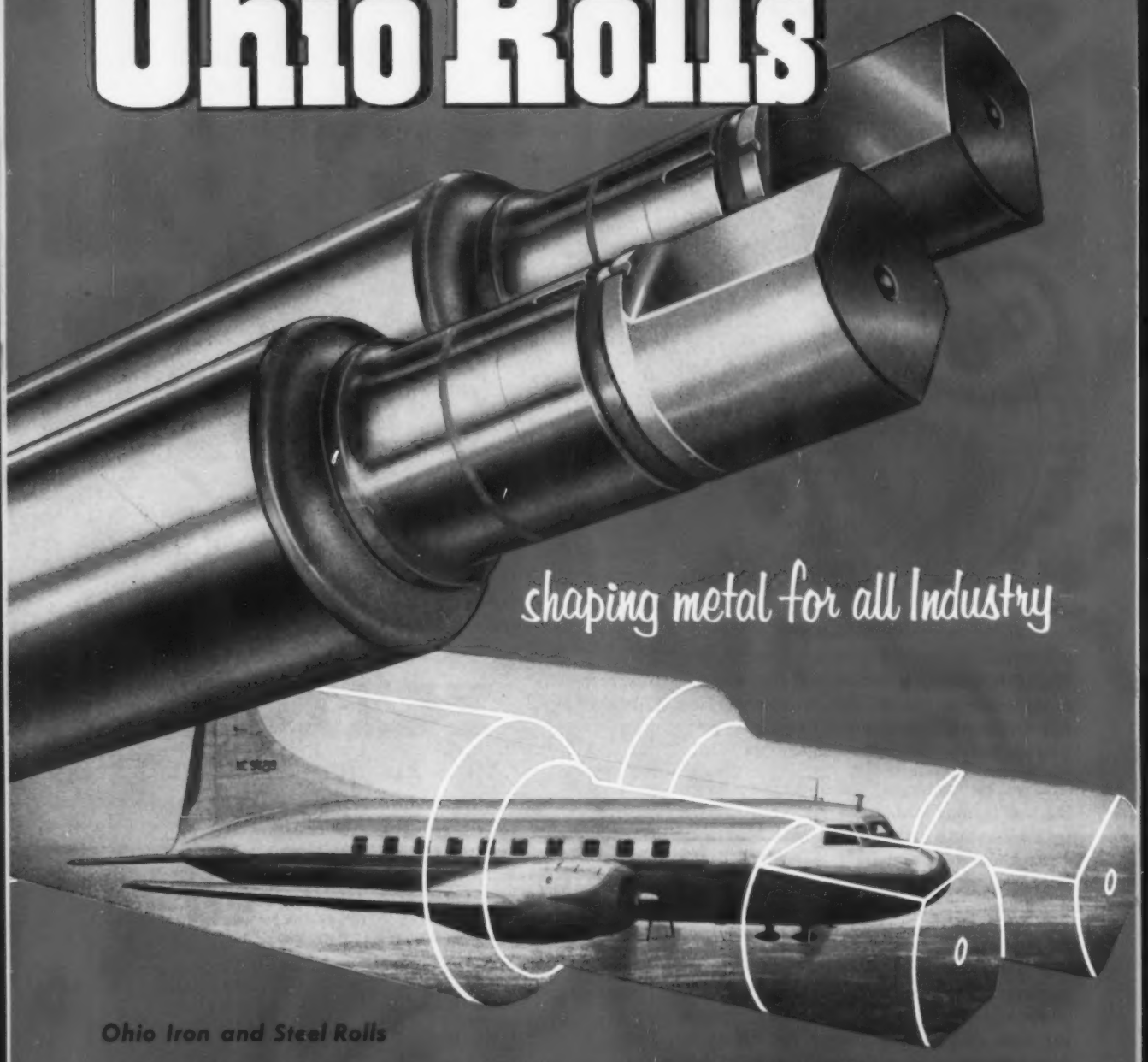

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THE OHIO STEEL FOUNDRY CO.

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Plants at Lima and Springfield, Ohio

LIMA... *Virtually at the center of the steel industry*

OR18

R. G. Hann, named supervisor, procedures, U. S. Steel Supply Div., U. S. Steel Corp.

The Whiting Corp., Harvey, Ill., has announced the following transfers. **George Kleinman,** from the Houston district office to Charlotte, N. C.; **T. R. Elmblad,** from Chicago to Pittsburgh; **H. K. Waters,** from Charleston, N. C., to Minneapolis, Minn.; **M. J. Beagle, Jr.,** formerly of the Swenson Evaporator Co., a division, to Houston, Tex.; **J. N. Brown,** formerly of Swenson Evaporator Co., to the Chicago district office.

A. J. Woods, named Buffalo district manager, New York, Latrobe Steel Co., Latrobe, Pa.

J. M. Mitchell, elected president, Alcoa International, Inc., subsidiary of Aluminum Co. of America.

P. P. Polonec, named plant superintendent, Rock Falls, Ill., plant, Russell, Burdsall & Ward Bolt & Nut Co.

G. P. Smith, elected director, traffic, The Colorado Fuel & Iron Corp.

H. E. Stephenson, appointed asst. controller, Cutler-Hammer Inc.

J. E. Harkins, and **B. E. Dane,** named territory managers, south-central and mid-east regions respectively, Alloy Tube Div., The Carpenter Steel Co., Union, N. J.

J. L. Wheeler, appointed general manager, Die Div., Clearing Machine Corp.

R. I. Peters, appointed asst. chief engineer, Heil Process Equipment Corp., Cleveland.

E. J. Long, appointed director, Transducer Div., Consolidated Electrodynamics Corp., Monrovia, Calif.; **D. E. Murphy,** appointed administrative manager, Datalab, a division.

Following appointments are within General Electric's Distribution Assemblies Dept., Plainville, Conn. **A. A. Watson,** named manager, marketing and assemblies and components sales; **R. C. Wilson,** named manager, manufacturing and plant operations.

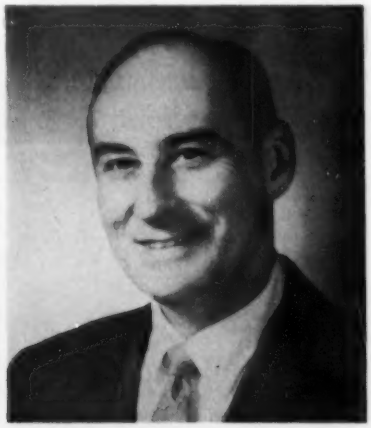
W. C. Mohrman, named district sales manager, Houston, Tex., office, Tubular Products Div., The Babcock & Wilcox Co., Beaver Falls, Pa.; **G. H. Weight,** named sales manager, Middle States, Tubular Products Div.; **J. H. Roach,** named district sales manager, Tulsa, Okla., office, Tubular Products Div.

F. St. Clair O'Leary, appointed company counsel, Pittsburgh Steel Co.

J. M. Higinbotham, appointed asst. sales manager, Buffalo district, Republic Steel Corp.

R. E. Scheel, appointed Western sales manager, Heil Process Equipment Corp., Cleveland.

Olav Moklebust, appointed superintendent, pilot plant, R-N Corp., Birmingham, Ala.



V. E. Flaherty, appointed automotive industry manager, Kaiser Aluminum & Chemical Sales, Inc.

Taylor & Company specializes in versatility with HANNA PIG IRON

Taylor & Company, Inc., Brooklyn, New York, casts them little and big with equal ease—from dry-sand castings that weigh tons, to light close-tolerance parts cast by the shell-molding process. As many as 6,000 different patterns are used by Taylor in an average month.

For seventy-five years, this merchant foundry has turned out a variety of sizes and shapes with the aid of high-quality Hanna pig iron, especially Hanna Malleable and Hanna Silvery grades. President William Z. Taylor has never failed to find Hanna a dependable source of supply for any analysis he needs to meet his customers' requirements.

Whatever you cast, there's a Hanna iron to do it best. All regular grades of pig iron, plus HannaTite and Hanna Silvery, are available in 38-pound pigs and the smaller HannaTen ingots. For prompt service, call on one of Hanna's trained representatives.

△ *This 6-ton dry-sand casting will be a machine tool base that stands up to vibration and shock, provides a rock-steady foundation for accurate work.*

◁ *These small parts were cast to close tolerances by the shell-molding process, and need little or no machining.*

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NATIONAL STEEL CORPORATION

New Technique Rids Plated Steel Of Hydrogen Embrittlement

By H. H. Johnson, E. J. Schneider, and A. R. Troiano*

Let's say you're now putting a 0.0005-0.0007 in. cadmium plate on steel parts to improve corrosion resistance. And you want to avoid hydrogen embrittlement.

Here's a new—and really simple—baking procedure that may solve your problem.

▪ It's simple, efficient, and highly effective. What's more, it requires no additional shop equipment and only a minor change in normal plating-room routine.

These are highlights of a new technique for ridding cadmium-plated steel of the embrittling effects of hydrogen. The technique was developed by researchers of the Dept. of Metallurgical Engineering, Case Institute of Technology, Cleveland. It is a significant end product of a program sponsored by the Aeronautical Research Laboratory, Wright Air Development Center.

Steels are often electroplated with cadmium to improve corrosion resistance. But there is always the danger that the plated steels will be severely embrittled.

Hydrogen Problem — Sufficient hydrogen may be introduced during normal surface cleaning and electroplating to cause brittle failure at low stresses. The embrittlement problem has become even more acute with the increased use of high-strength, alloy steels.

To reduce hydrogen embrittlement, a baking treatment is often specified. Its purpose is to recover ductility by driving the hydrogen from the steel. A typical recovery treatment consists of baking a cadmium-plated part for several hours in the temperature range of 300° to 400°F. Such treatments are not always effective. Mute proof turns up in the form of failed plated parts.

Other Factors—Apparently, several factors can influence the efficiency of a recovery treatment. Only a few of these have been investigated. It has been shown that, for a given baking treatment, there is less recovery of ductility as the strength level of the base steel increases.

Also, the recovery process obeys a time-temperature sequence. Essentially, this means that greater recovery results from higher baking temperatures or longer baking times.

It has not been shown whether hydrogen outgassing is governed primarily by the base steel or the cadmium electroplate. If the cadmium plate is the controlling factor, then a question of commercial interest is the influence of plate thick-

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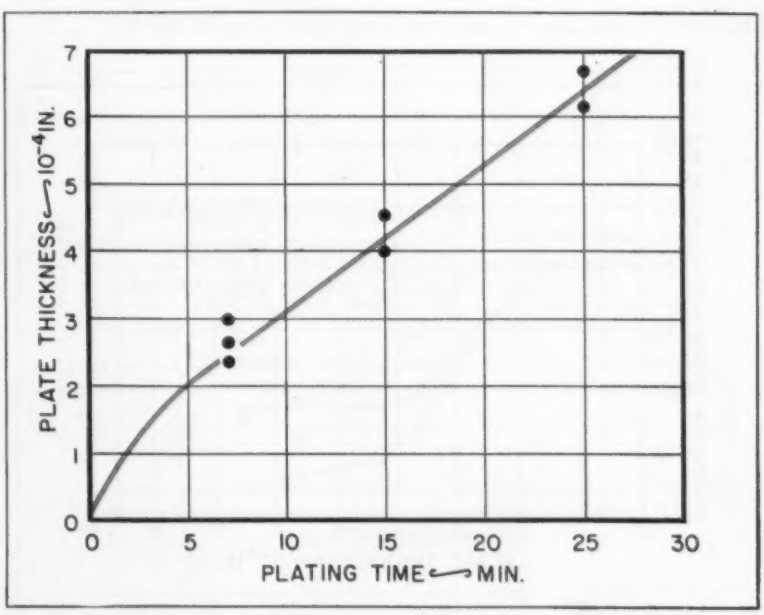

FIG. 1: Under fixed conditions, plating thickness varies with time.

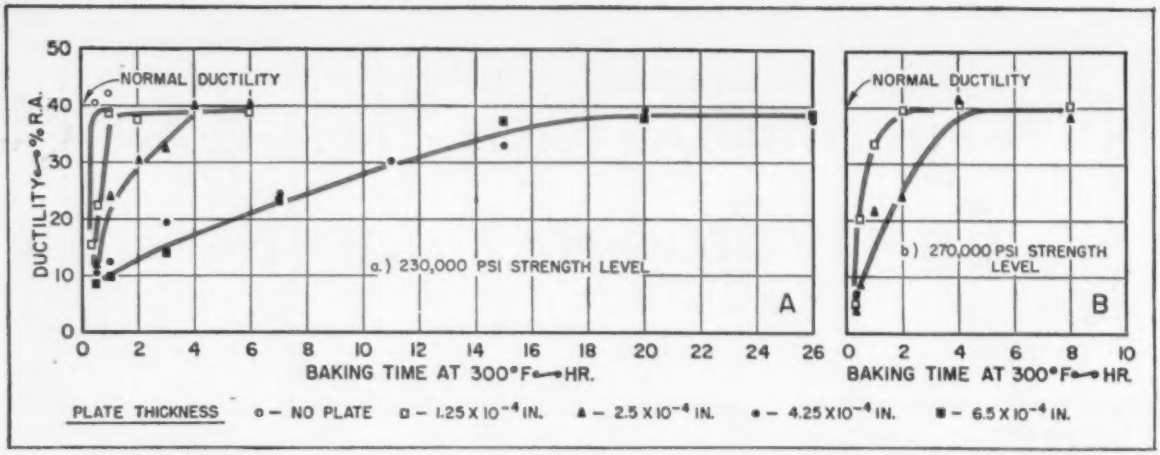
NORMAL DUCTILITY
DUCTILITY—% R.A.
a.) 230,000 PSI STRENGTH LEVEL
A
BAKING TIME AT 300°F—HR.
NORMAL DUCTILITY
b.) 270,000 PSI STRENGTH LEVEL
B
BAKING TIME AT 300°F—HR.
PLATE THICKNESS o – NO PLATE □ – 1.25 X 10⁻⁴ IN. ▲ – 2.5 X 10⁻⁴ IN. • – 4.25 X 10⁻⁴ IN. ■ – 6.5 X 10⁻⁴ IN.

FIG. 2: Curves plot the behavior for various cadmium plate thicknesses that were baked at 300°F.

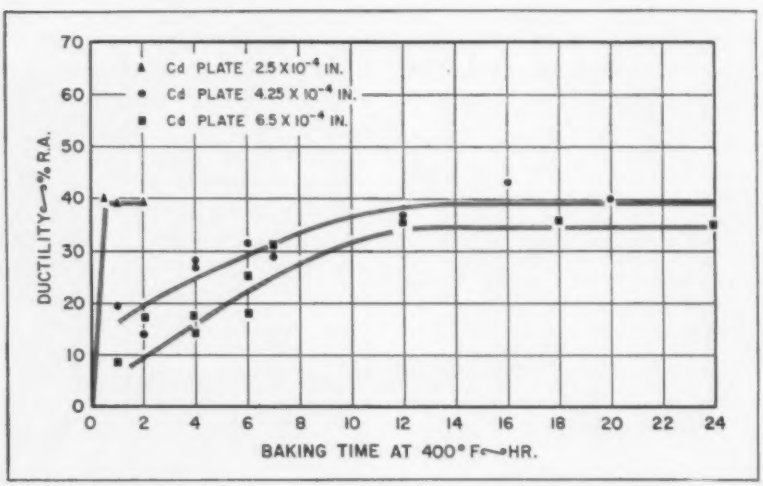

FIG. 3: Recovery behavior for plate thicknesses baked at 400°F.

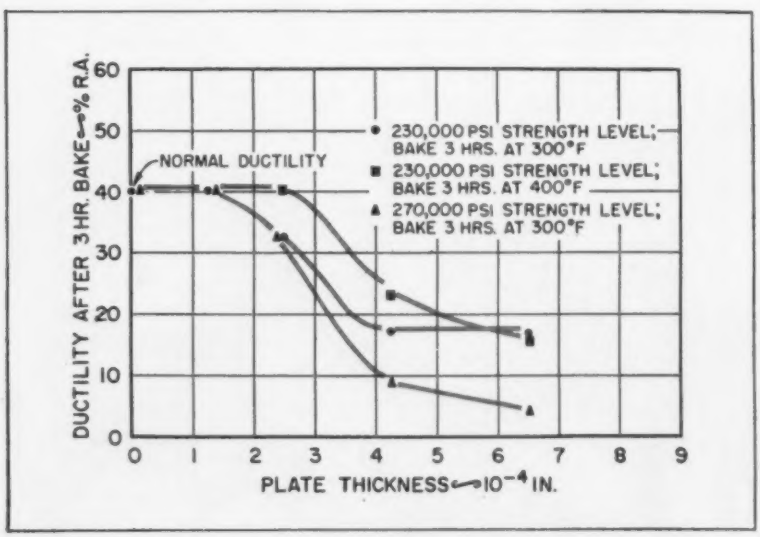
DUCTILITY AFTER 3 HR. BAKE—% R.A.
NORMAL DUCTILITY
• 230,000 PSI STRENGTH LEVEL; BAKE 3 HRS. AT 300°F
■ 230,000 PSI STRENGTH LEVEL; BAKE 3 HRS. AT 400°F
▲ 270,000 PSI STRENGTH LEVEL; BAKE 3 HRS. AT 300°F
PLATE THICKNESS—10⁻⁴ IN.

FIG. 4: How ductility is affected by commercial baking treatments.

ness upon the recovery rate.

New Program — For test purposes, Case researchers used bar stock from a commercial heat of electric furnace, aircraft quality 4340 steel. Specimens were heat treated to two strength levels, 230,000 and 270,000 psi. In the form of tensile bars (2 in. radius, 0.212 in. diam.), specimens were austenitized for 45 minutes at 1550°F in a neutral salt bath, then tempered for one hour. Tempering temperatures were 750°F (230,000 psi) and 550°F (270,000 psi).

To simulate commercial treatment of high-strength steels, the specimens were degreased in carbon tetrachloride and then cathodically charged for 5 minutes in a 4 pct sulphuric acid solution. Current density was held at 1.4×10^{-4} amps/sq ft. Readily reproducible, this procedure closely approximates the acid pickling or other surface cleaning treatments given commercial parts before electroplating.

Commercial Conditions — Immediately after electrolytic charging, the specimens were cadmium plated in a cyanide bath. Composition of the plating bath (in grams per liter) was as follows: cadmium oxide—32, sodium cyanide—112, sodium hydroxide — 12, and a brightening agent—4.5.

With a current density of 20 amps/sq ft, a bright and adherent cadmium plate was obtained. A

cadmium anode was used and the bath was not agitated.

Cadium plate thickness was conveniently controlled by varying the plating time (Fig. 1). To obtain this curve, the specimens were sectioned, polished, and the plate thickness measured with a filar eyepiece. The plating thicknesses obtained cover the range specified by the ASTM.

After plating, specimens were baked in an air furnace at 300° or 400°F. Reduction of area was chosen as the criterion of ductility.

Plate Affects Recovery—By comparing the recovery characteristics of plated and of plated-plus-deplated specimens, it is evident that the cadmium plate definitely controls hydrogen outgassing (Table 1). Two groups of specimens at the 230,000-psi level were electrolytically charged and cadmium plated under identical conditions. Plate was removed from one group of specimens by dipping in a chromic acid solution just prior to the baking treatment.

The deplated specimens show complete recovery. The plated specimens are severely embrittled. Obviously, the cadmium plate is a strong deterrent to recovery. By delaying the passage of hydrogen, it is an efficient barrier to hydrogen outgassing.

Normal Baking — Considering this behavior, it is not surprising to find that cadmium plate thickness strongly influences recovery (Figs. 2 and 3). The same pattern is evident upon baking at both 300° and 400°F, although recovery is slightly faster at 400°F. In both cases, thinly plated specimens recover rapidly. Thickly plated specimens may require as long as 20 or more hours baking for complete recovery.

How effective are typical commercial baking treatments? The ductility after a 3-hour bake—a typical commercial treatment—is shown for each plate thickness investigated (Fig. 4). Commercial baking treatments are evidently effective with thin plates. Thickly plated parts may still exhibit severe embrittlement.

Table 1 Barrier Effect of Cadmium Plate

Sequence 1	Sequence 2
a. Hydrogen Charge	a. Hydrogen Charge
b. Cadmium Plate	b. Cadmium Plate
c. De-Plate (Chromic Acid Solution)	c.
d. Bake at 300°F	d. Bake at 300°F

Reduction of Area, pct

	Bake 0.5 Hrs at 300°F	Bake 3.0 Hrs at 300°F
Sequence 1 (De-Plated)	40	40
Sequence 2 (Plated)	10.5	17

Too Long—Because of this, extremely long baking times may be necessary to obtain complete recovery. Within the range of commercial plate thicknesses, necessary baking time varies from a few hours to as long as 20 or more hours. These baking times depend upon the particular embrittlement conditions. Specific values are valid only for the hydrogen charging conditions employed.

In service, additional factors such as section size, strength level, and stress raisers may influence the recovery behavior. Even longer baking times than those mentioned may be necessary for complete recovery. The effect of these factors would presumably be additive to that of plate thickness.

Wide Variation — Influence of plate thickness upon recovery is undoubtedly responsible for much of the current confusion regarding hydrogen embrittlement in service. Considering the different operating conditions likely to be found among electroplating shops, and the normal variations in plate thickness over irregularly shaped parts, wide variations in embrittlement may be expected.

All of which poses a dilemma—in that the requirements for maximum corrosion resistance and for

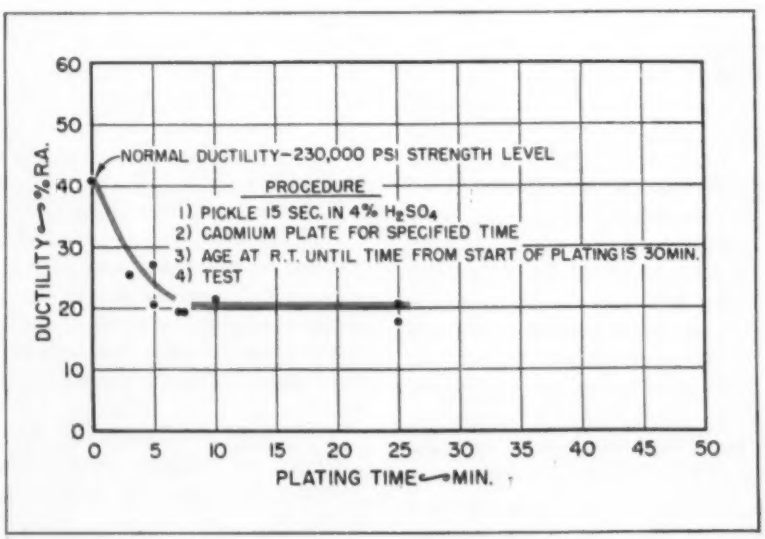

FIG. 5: Chart shows how cadmium plating time influences ductility.

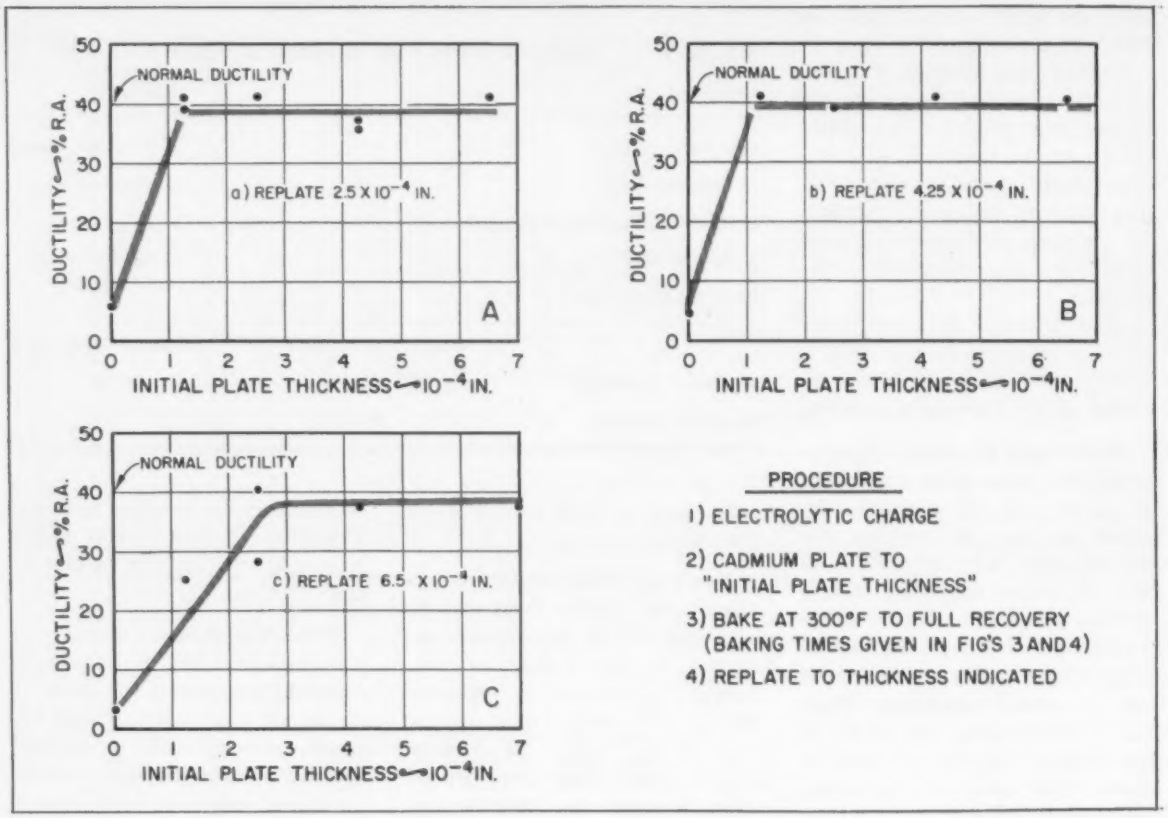
NORMAL DUCTILITY
a) REPLATE 2.5 X 10⁻⁴ IN.
A
DUCTILITY ⟷ % R.A.
INITIAL PLATE THICKNESS ⟷ 10⁻⁴ IN.
NORMAL DUCTILITY
b) REPLATE 4.25 X 10⁻⁴ IN.
B
DUCTILITY ⟷ % R.A.
INITIAL PLATE THICKNESS ⟷ 10⁻⁴ IN.
NORMAL DUCTILITY
c) REPLATE 6.5 X 10⁻⁴ IN.
C
DUCTILITY ⟷ % R.A.
INITIAL PLATE THICKNESS ⟷ 10⁻⁴ IN.
PROCEDURE
1) ELECTROLYTIC CHARGE
2) CADMIUM PLATE TO "INITIAL PLATE THICKNESS"
3) BAKE AT 300°F TO FULL RECOVERY (BAKING TIMES GIVEN IN FIG'S 3 AND 4)
4) REPLATE TO THICKNESS INDICATED

FIG. 6: Outline for new recovery treatment minimizing hydrogen embrittlement at 270,000 psi strength level.

minimum hydrogen embrittlement are mutually incompatible. A reasonably thick plate is necessary for good corrosion resistance. But a thin plate is desirable to minimize hydrogen embrittlement.

New Approach — Basically, the problem is to deposit a thick electroplate and, at the same time, obtain full recovery after a reasonably short baking treatment. An obvious approach would be to use higher baking temperatures. This is limited by susceptibility of cadmium to oxidation and the original tempering temperature of the base steel.

The new recovery treatment developed at Case Institute depends essentially upon the ability of cadmium to delay passage of hydrogen. Basis of the treatment is shown in Fig. 5 which compares the variation of ductility with plating time.

Ductility decreases rapidly to a limiting value during the first few minutes of plating. It then remains constant. Evidently, hydrogen enters the steel only during the first few minutes of plating and cannot enter after a critical thickness of plate metal has been deposited.

First Step—By taking advantage of this behavior, an apparently efficient recovery treatment was devised. A thin layer of cadmium is electroplated on the steel, and this layer is then baked to recovery. Baking time is short because the plate is thin.

A second layer of cadmium—of any thickness—is then deposited. Because the first plate prevents the entry of hydrogen, the second plating has no embrittling effect. So efficient is this technique that no baking is needed after the second plating.

Validity of the method for the 270,000 psi strength level and several plate thicknesses is shown in Fig. 6.

How It Works—Here's an example of how the new procedure works. Suppose that it is desired to deposit a cadmium plate of about 0.00075 in. on steel heat treated to 270,000 psi. In this instance, Fig. 6c is applicable. First, a cadmium plate of 0.000125 in. is deposited. The steel is then baked to full recovery. This requires only one hour 300°F.

A second cadmium plate of 0.00065 or more may then be deposited. No embrittlement will result from the second plate. In the tests at Case, absolutely no difficulty was met in obtaining a sound and adherent second plate after the one-hour baking cycle.

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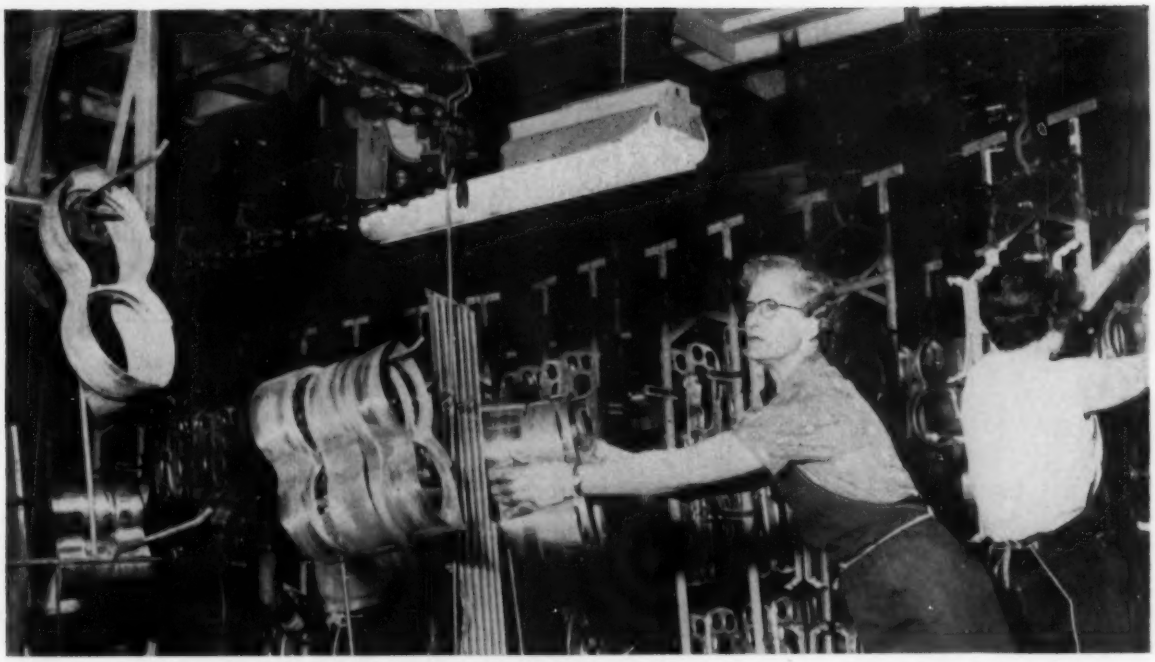


RACKS PROGRAM TREATMENT: Operator has only to load. Racks take over to follow pre-selected steps.

Conveyor Allows Random Choice Of Anodizing Treatment

By **Robert Nyquist**—Chief Chemist, Bay Mfg. Div., Electric Auto-Lite Co., Bay City, Mich.

How do you custom anodize for manufacturers that demand special treatment and yet keep on a mass production basis?

One way is to get away from batch operation and set up a flexible system to permit selection of treatment as parts travel through their cycle.

▪ If all aluminum parts were anodized at the same depth and dyed the same color, suppliers would have a simple task. But with anodized aluminum used for many types of trim, Detroit firms specify dozens of finishes.

Independent suppliers often produce for more than than one auto maker. How can parts be anodized quickly and at a low cost when different finishes need separate cycles?

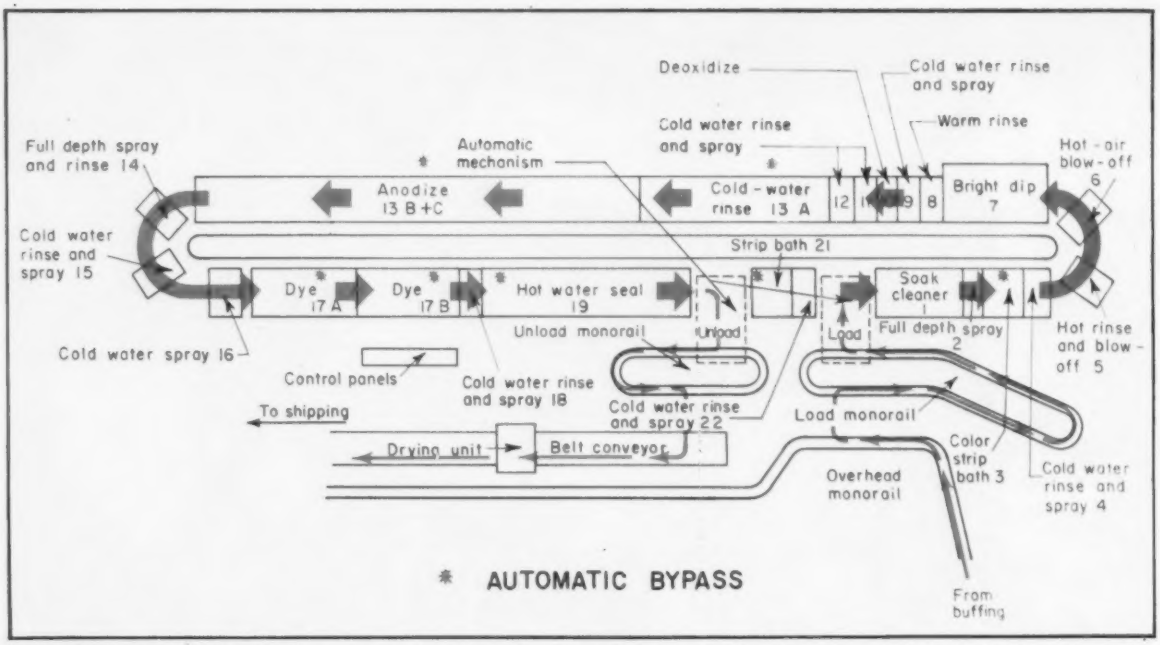
One solution would be to "back up" parts until enough collected for a full run. But this still means machine down-time between each run.

Use Random Feed — A better answer is to permit separate cycles for each rack of parts, fed at random into the machine. That was the choice Auto-Lite's Bay Mfg. Div. made in specifying its automated anodizing machine, a unit designed and built by the Hanson-Van Winkle-Munning Co. of Matawan, N. J.

For example, a rack of side-panel trim for one automobile manufacturer is given a plain anodized finish. It may be followed by a rack of side-panel trim which takes a gold dye, or by a rack of grills for another auto maker, calling for a different gold shade.

Parts flow from buffing on an overhead monorail conveyor to the load station. Manually loaded onto the programmed racks on another monorail, the parts automatically transfer to the anodizing conveyor to follow their finishing cycle.

Selective Racks — The rack indexing system permits each rack of parts to follow its own cycle, independent of the racks ahead or behind. The racks themselves establish the anodizing cycle through limit switches that control



VERSATILE CYCLE: Racks program treatment by actuating appropriate bypass switches for automatic cycle.

bypass mechanisms on each tank.

Index trips on the racks contact these switches and determine whether the rack will descend into the solution, or will pass over to the next tank. Each part has its own racks.

Titanium is used for all exposed clips. Titanium costs more to start, but overall economy is better than with standard aluminum clips. Plastisol coatings on the racks show excellent resistance to anodizing solutions.

From Buffing to Monorail — A headlight shell, as an example, is buffed on an automatic lathe to eliminate stamping defects. From the buffing lathe, the parts travel by overhead monorail to the loading station in the anodizing department.

Five operators transfer the parts to the proper racks on the constantly moving load monorail. One side of the rack is loaded as it moves along the load station, then an automatic turn mechanism swings it around and the other side is loaded.

Racks transfer automatically from the load monorail to the carrier arms of the anodizing machine by a shuttle transfer mechanism. The carrier arms each hold two racks of the same type of part. Once loaded, the carrier arm follows its own independent cycle through the tanks.

Limit Switches Act—Each rack has projections which are positioned to contact a different series of limit switches. These switches control solenoid-operated bypass flippers. Each carrier is fitted with a bypass roller and roller support.

When a switch is contacted by the rack, the flipper shunts this roller onto a bypass track. This track holds the carrier in the air until it reaches the next tank in the cycle. If the rack does not contact a limit switch, the carrier arm descends into the tank.

An auxiliary set of manual bypass controls is used during weekend shutdowns. By tripping each manual control, all racks are held above the solution tanks to prevent unnecessary rack corrosion or contamination of solutions.

Round-the-Clock Shifts—At the present time, the H-VW-M machine operates on three shifts, round-the-clock, 5 days a week. In three shifts, 85,000 sq ft of parts are anodized. A complete cycle takes 1 hour 45 minutes from load to unload.

In unloading, the transfer mechanism removes the two racks from each carrier arm and transfers them to the unload monorail conveyor. Here the parts are unracked by two operators and placed on a canvas-belt conveyor which carries them under an infrared dryer and to inspection and packing stations.

The anodizing conveyor itself is automated. It requires an operator for each shift, and an assistant who mans an inspection station on the rear of the oval-shaped unit.

Pinpoints Trouble Spots — A large control panel at the operator's station has indicator lights and off-on switches for each function. A breakdown or overtravel anywhere during the cycle will automatically stop the machine and the indicator lights will pinpoint the exact trouble spot.

Two 10,000 - amp generators supply the 8 to 12 amp per sq ft required for anodizing aluminum. To maintain even temperatures, a heat exchanger and refrigeration system holds the solutions to ±2°F. Solution is pumped through the

graphite tubes of the heat exchanger by a 15-hp electric motor.

A 7½-hp motor pumps 45°F cooling water from the two 75-ton freon refrigerators through the exchanger at the rate of 345 gpm. This maintains the anodizing solutions at 70°F at any operating current up to 30,000 amp at 15 v.

Air agitation as well as motor agitation is used for the tanks. Since shop air lines usually have a high level of oil vapor, a separate compressor is used to supply filtered air to the machine.

Daily Lab Checks—When daily laboratory tests or a visual level check by the operator indicate more solution is needed for a conveyor tank, a switch on the control panel is depressed. The solution is then pumped from below-floor storage tanks until the desired level is reached.

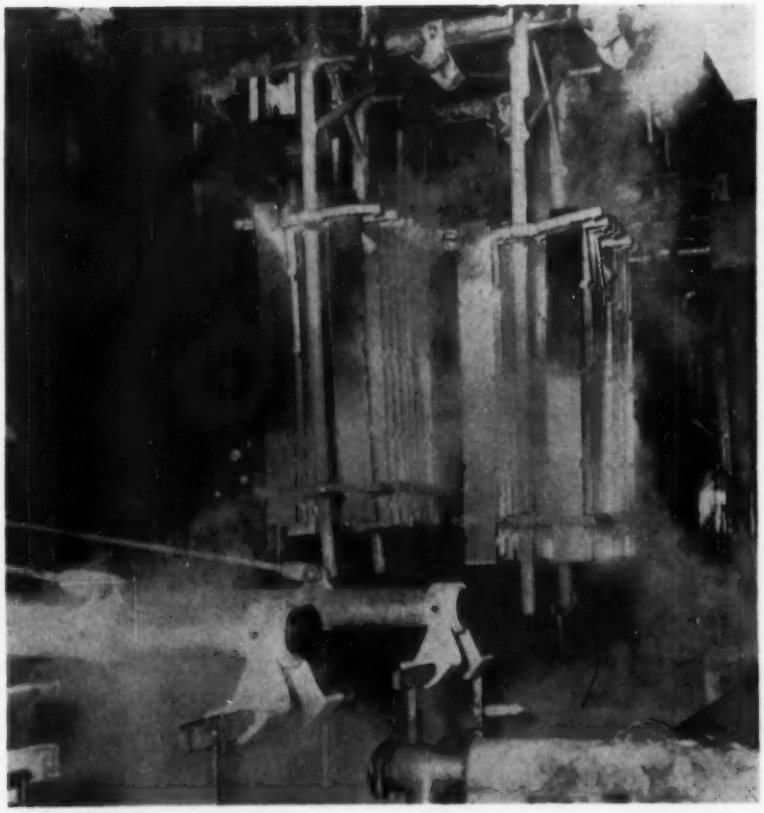
Preventive maintenance is conducted on a regular schedule. The control panels and other electrical points are given an inspection and cleanup by the electricians each Saturday.

On alternate weeks, a complete lubrication is performed on the entire machine, the transfer mechanism and the load and unload monorail conveyors.

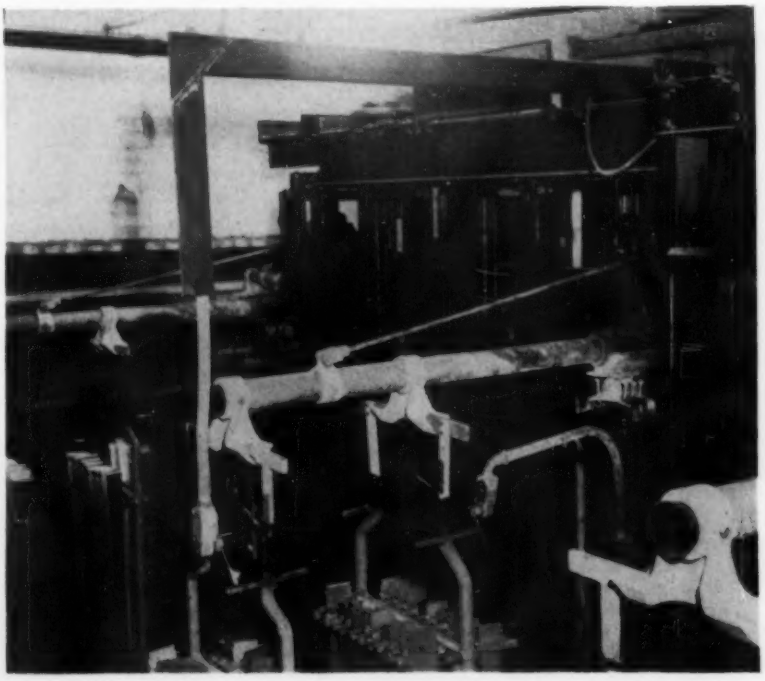
Cycles Unlimited — At the present time, three cycles are being used, one for each of the three automobile makers supplied. However, the number of cycles possible is almost unlimited. As demands for specific treatment alter, racks are added with the proper indexing trips.

For special short-run orders, temporary indexing trip pins are added to racks. This permits choosing a cycle for a single rack of parts, or for a short-run of any amount.

Experimental racks are set up in this manner, and special finishes may be obtained without interrupting the regular production run on the machine. By eliminating downtime for switching from one type of run to another, production rates are held at the high level required.

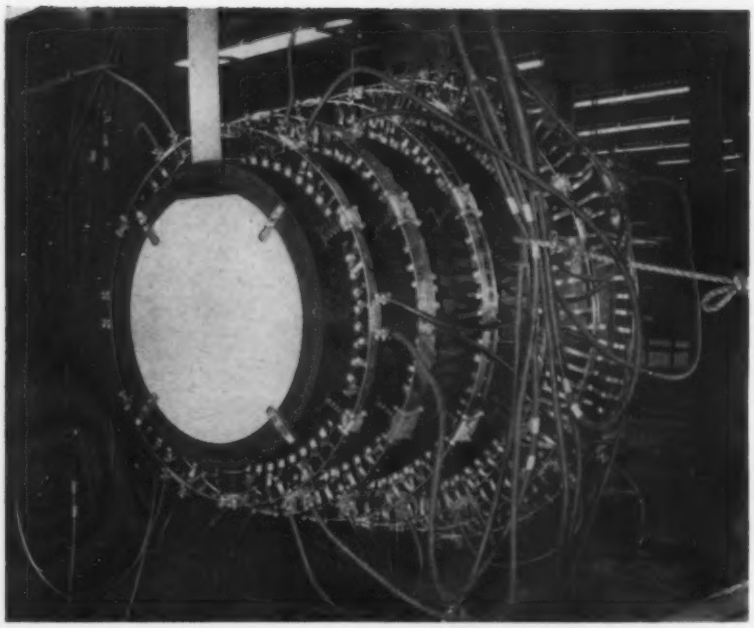


EMERGE FROM SEAL: Trim panels are emerging from hot-water seal as last step before being lowered to unload transfer mechanism.

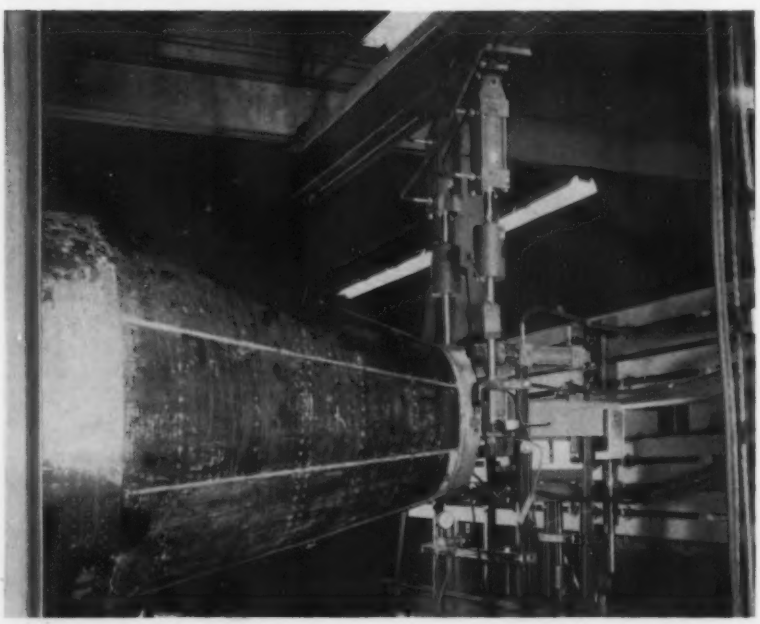


BYPASS SWITCHES: Projections on racks trigger bypass switches whenever parts are to bypass a given tank during continuous cycle.

Special Heat-Stress Rigs Test Full-Size Missile Parts



MISSILE FURNACE: Cone-shaped heater assembly for testing nose section of Redstone uses some 3600 kw of power in a 30 second test.



UP FRONT: Extreme nose end is loaded both in compression and shear. At the same time tensile loading inside simulates missile payload.

Tests on small samples of materials aren't enough in today's missile work.

The only way to gage reliability is to test actual parts and whole assemblies. Moreover, it has to be done in terms of conditions the big bird will meet in flight.

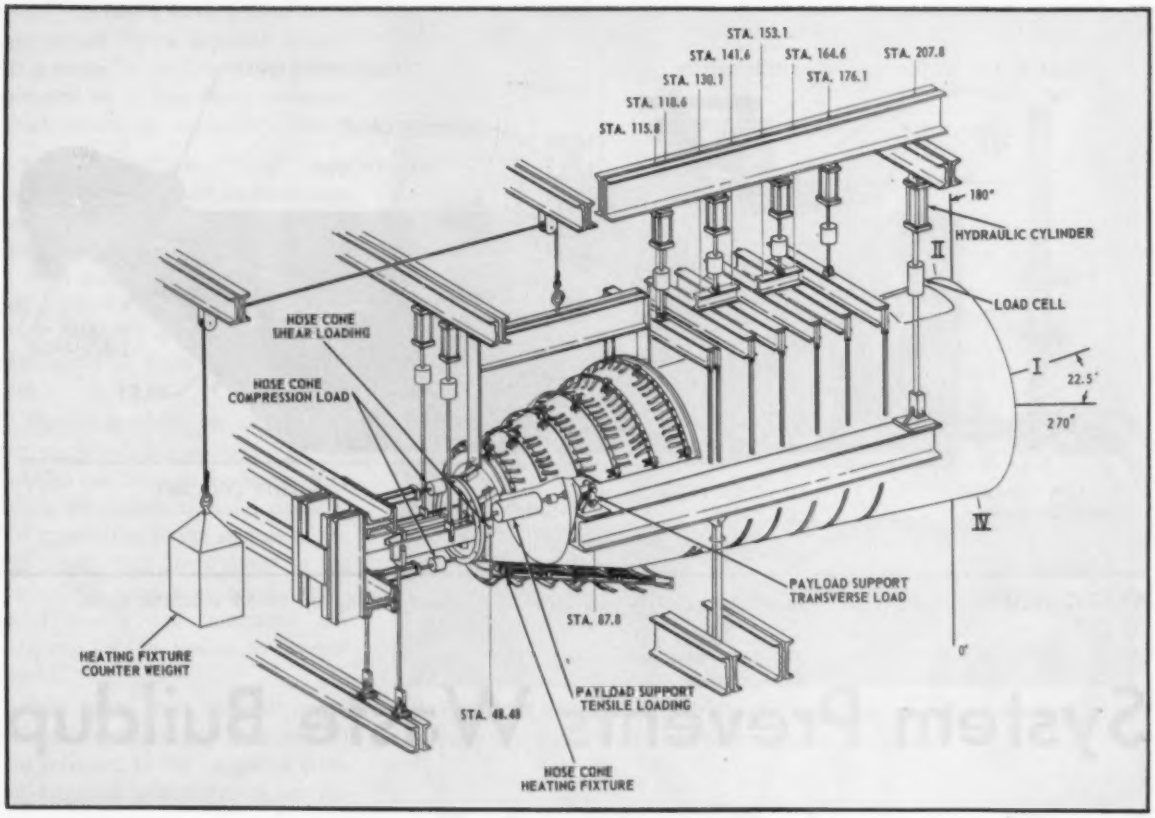
▪ Absolute reliability is a must for missiles. They can't be just 99 pct right. So preflight testing is a vital and regular part of the work. It can save a lot of time in the actual flight test, speed production, and cut costs.

Of special concern is finding out how various parts of the bird will behave at high temperature. Chrysler missile engineers have come up with some unusual rigs for this important job. They're using banks of 1000 or more quartz infrared lamps mounted in large cones or cylinders which neatly fit the component or subassembly being tested.

Fast Heat—This type of heater can go to several thousand degrees Fahrenheit almost instantaneously. In fact, one small high-density unit which has 32 lamps in about ¼ sq ft will completely burn through a test square of low carbon steel in half a minute. In this brief period filament temperature of the lamps jumps to 5400°F.

This gives a rapid test of heat resistance of small material samples. What counts more, however, is what happens to actual fabricated parts.

These elevated temperature tests use simulated environmental loading. Information for loadings comes from the stress analysis group. This gives calculated design data regard-



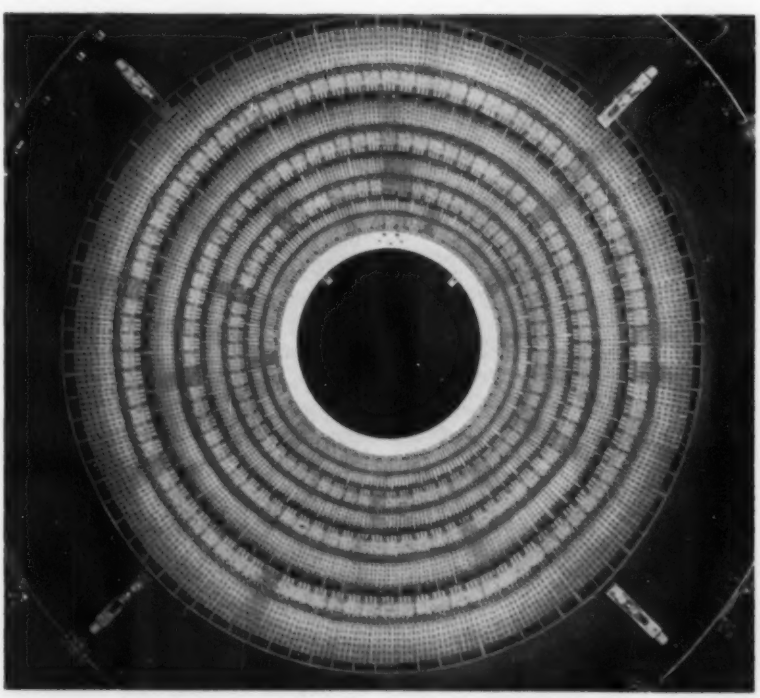
APPLIES STRESS: An elaborate arrangement of jacks, linkages and backups applies loads at high temperature.

ing shear stresses and bending moments. These design factors are then modified in light of actual service conditions telemetered from missiles in flight.

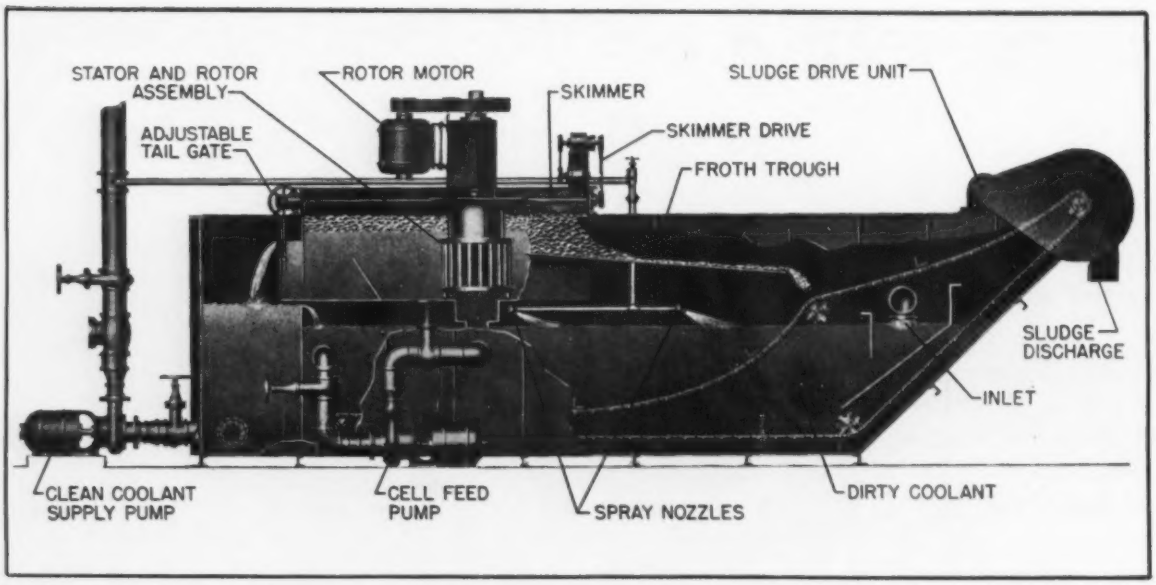
All Sizes Tested—Test engineers load components and structures to be tested in the usual ways, with jacks and hydraulic cylinders. Although actual loadings and machine ratings can't be revealed, they're obviously measured in tons for major missile structures.

Testing under severe heat and high loading isn't limited to major structures alone. Many smaller subassemblies, and even individual bolts or rivets, are done this way.

Seek New Materials—The tests vary in complexity, usually in proportion to the structure under test. Generally speaking, preparation takes more time than the test itself. Dismantling the test setup and evaluating results is also a time consuming process.



HEAT SOURCE: Closely spaced quartz infrared lamps supply uniform heat, go almost instantly to temperatures as high as 5400°F.



NEVER STOPS: Two of these flotation units clarify and recirculate clean cutting oil to 54 machine tools.

System Prevents Waste Buildup In Central Coolant Supply

By A. B. Myler—Chief Engineer, Metalworking Oil Dept., Sun Oil Co., Philadelphia

Foreign particles in a recirculating coolant supply are rough on workpiece finishes.

But how do you remove these wastes without costly shutdowns?

This plant does it automatically and continuously with a pair of flotation cells.

▪ The application and function of cutting oils are important factors in today's trends toward (1) higher machining speeds and feeds, (2) the use of superalloys. It is especially important, where fine finishes and close tolerances are required, that recirculating supplies of cutting oil be kept free of suspended chips and tiny abrasive particles.

The chip-wetting action of modern petroleum-base, "soluble" cutting oils causes much of this foreign material to settle out. But even with optimum wettability and fast settling rates, some fines will stay suspended in the moving coolant supply.

Without a positive means for removing all foreign particles, a slow buildup will gradually affect workpiece dimensions and finish. Machines must then undergo costly shutdowns until the coolant can be replaced, or until all fines are allowed to settle out.

Constant Waste Removal — A system for avoiding such shutdowns is a feature of Grinnell Corp.'s line at Columbia, Pa., for machining malleable pipe fittings. It's a fully automatic method that continuously removes insoluble wastes from the plant's central supply of emulsifying cutting oil.

Installed in 1948, the equipment has run ever since on a round-the-clock basis with no time out for repairs. Productivity of the 54 machine tools linked to the system has been increased greatly due to reduced maintenance plus elimination of downtime for particle settling and sump cleaning.

Twin "hearts" of the system are two Hoffman flotation units. As the cutaway drawing shows, each one occupies a slope-ended steel tank 8 ft high, 8 ft wide and 17 ft long.

Built into each tank are: (1) a flotation cell with a motor driven rotor-stator assembly to whip the

cutting oil into a froth, plus a skimmer driven by a separate motor; (2) a series of particle-scraper bars mounted on a drag chain conveyor which moves up an inclined chute.

Settle Fines First—"Dirty" coolant coming from machine tools connected to each unit first enters a detention compartment for settling. It then passes on to the flotation cell where the Fagergren-type rotor-stator assembly rotates at a peripheral speed of from 1000 to 1500 fpm.

The rotor whips up and aerates the particle-laden coolant. As air bubbles rise through the liquid, they attach themselves to solid particles and carry them to the surface of the cell where they are trapped in the froth. Aeration also retards bacterial growth and minimizes any tendency for the coolant to become rancid.

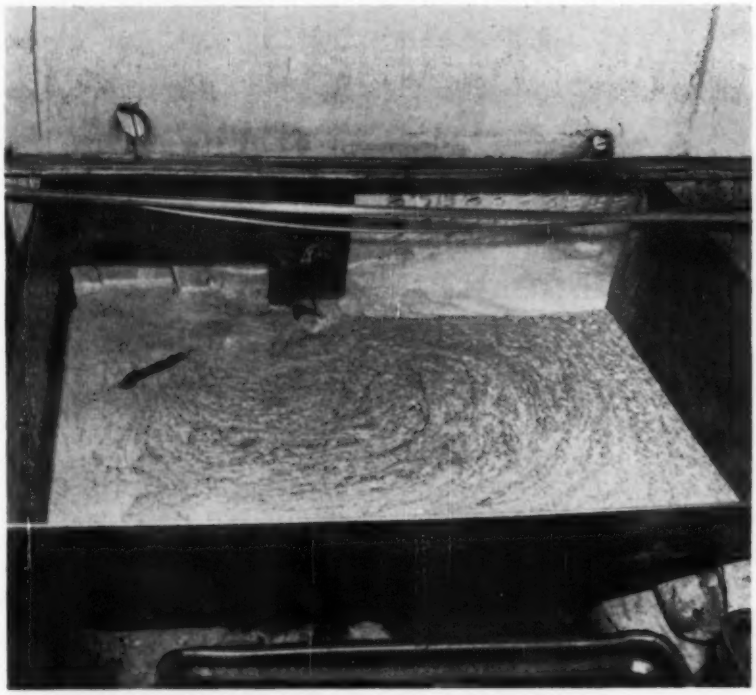
The froth, with its entrapped solids, is continuously skimmed off and returned to the incoming coolant-detention compartment for additional settling. A series of sprays aid the settling action.

Market for Waste — Settled-out particles are removed automatically by the conveyor-mounted scraper blades. Blades move slowly up the drain slope so excess coolant can drain out before the iron-rich fines are discharged to waste bins. Grinnell sells these fines to waste material dealers.

Clarified cutting oil flows continuously to the clean coolant compartment and is piped from this central supply point to the individual machine tools. Circulation capacity is 1000 gpm.

Because the clarifying is done mechanically, there is no need to add precipitators or other chemicals to the oil-water mixture.

The soluble cutting oil for this central supply system is Sunoco XP-715, used in a 10:1 emulsion. It's kept on the rich side to put a rustproof film on the plant's threaded malleable fittings which go to the plumbing, heating and industrial piping trades.



READY FOR SKIMMING: Froth of aerated cutting oil at top of flotation cell traps tiny metal fines and other abrasive particles.

NO BURRED THREADS: A steady flow of clean coolant supplied to this semi-automatic threading machine means better, faster production.

High-Temperature Furnace Speeds Vacuum Heat Treat

It gets up to several thousand degrees in less than half an hour.

Pumpdown to very fine vacuum takes about half as long.

Cooling is equally fast, and control is accurate to a few degrees.

On top of all this, it's a production-size unit.

▪ Vacuum heat treating has grown out of the laboratory to become a full-blown tool of production. With a new furnace developed by C. I. Hayes, Inc., Cranston, R. I., it's possible to heat treat production-size loads at upward of 3000°F and in 0.1 micron vacuum.

What's more, the new high-temperature/high-vacuum furnace gets to these levels in something less than half an hour, can be accurately controlled within close limits, and cools the work just as quickly.

COOL OUTSIDE: Water-jacketed furnace walls stay at room temperature or below, even while the furnace is operating at upwards of 3000°F.

This permits routine production heat treatment—without discoloration—of metals like stainless steel, titanium, tantalum, tungsten, molybdenum, hafnium, and niobium (columbium). The furnace will anneal, harden, braze, sinter, degass and reduce.

In fact, it'll do many things that have never been done on a production scale before. For instance, molybdenum sintering, at temperatures above 2800°F, can now become a production process.

The high vacuum can also be used as a reducing atmosphere to remove discoloration resulting from prior operations.

Does Double Duty—One of its more important functions is the ability to anneal and degass at the same time. The high vacuum effectively draws adsorbed or combined gases from the heated surface of the work.

The furnace can also give successive treatments to the same charge without interruption, waiting or unloading between steps. One high-temperature alloy used in jet engines has been brazed at 2150°F, then diffused at 2050°F and finally annealed at 2250°F—all without removing parts from the furnace.

Basically, the new Hayes unit is a cold-wall resistance type furnace with radiation shielding. It has a separate, non-baffled, non-reflecting cooling chamber directly above the heating portion.

The entire heating chamber is made of heat-reflecting nickel-clad steel. This is surrounded by a circulating water jacket to eliminate the need for hot-wall refractory lining. The casing stays at room temperature or even below, which makes for comfortable working conditions

right up close to the furnace.

New Type of Element — Hayes has designed a new self-supported heating element consisting of shaped plates instead of spiral coils. Power is evenly distributed over the entire plate area. The element's cross-sectional area permits using extremely low voltages, so a high watt-density is achieved by raising the amperage.

In addition to very high temperature elements (made of molybdenum), others can be provided for the various temperature ranges required by different jobs. All elements are interchangeable without disconnecting the gasketed, water-cooled power leads.

The new-design elements are rugged—one has already come through a full year of service without breakdown or loss of efficiency.

Three-Pump System — Because various types of vacuum pumps have different areas of maximum efficiency, three different pumps are used to take care of successive stages of the evacuating cycle. A mechanical roughing pump quickly reduces pressure to around 100 microns. Then a booster pump and a diffusion pump cut in to achieve fine vacuum.

Because of the quick recovery time, the system takes only 15 minutes to reach full vacuum. Low blank-off pressure produces a vacuum as high as 0.1 micron, depending on the rate of charge outgassing.

Low Leakage Rate—All permanent metal-to-metal junctures are welded. Gasketing is restricted to such locations as the loading opening and heating-element leads, where repeated movement is required.

The chamber cover and wall have a grooved ring into which either an extruded silicone O-ring or a neoprene ring of square cross-section is fitted. Leakage has been tested to an indicated rate as low as 4 micron-liters per second. It stays well within the 15 micron rise per hour that's generally consdered good.

To focus the heat and keep it from radiating too fast into the surrounding water jacket, Hayes uses cylindrical, self-supporting radiation shields. These are made of nickel or molybdenum, depending on the temperature range desired.

STAY BRIGHT: Basket load of diaphragms is still shiny after treatment. The new Hayes furnace develops 0.1 micron vacuum in 15 minutes.

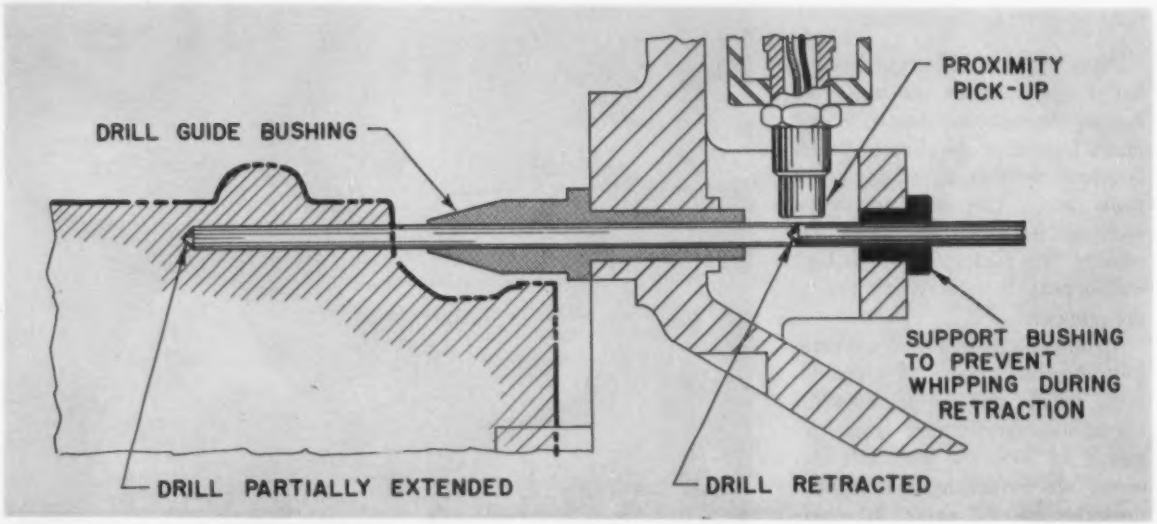
Cools Quickly—After treatment, the work is raised into the cooling chamber. Here the heat radiates rapidly into the water jacket, which is kept close to the work for high cooling efficiency.

The separate cooling chamber takes the Hayes furnace from full temperature to below 700°F in less than 30 minutes. For initial temperatures less than 3000°, the time is correspondingly less.

Close Control—The new furnace is equipped with a saturable reactor, an electronic feedback power regulator that holds treatment temperature steady within a few degrees. It directly scans the heating element itself, converting the sensed temperature to amplified direct current, which automatically regulates power input through an ac coil.

This system prevents overheating of the work; thermocouples applied to the work itself would lag somewhat behind actual work temperature during the rapid-heating stages of the cycle. Use of this principle is made possible by the fact that, with the Hayes heating element, a large, evenly hot surface is scanned.

Hydraulic lift simplifies raising and lowering of the cover during loading and unloading. A pulley system facilitates raising and lowering of the charge into and out of the cooling chamber.



BUILT-IN SAFEGUARD: Proximity pickup over point of fully withdrawn drill checks its condition.

Cut Drill Breakage On Small Holes

Getting smooth, high output with long, thin drills is quite a problem.

Frequent breakage hampers production, raises tool costs and often damages the work.

Here's an automatic machine that minimizes all three.

▪ Any small drill is prone to breakage. And one that has a length-to-diameter ratio of 50 to 1 is especially ripe for trouble. Yet, an automotive-parts manufacturer is economically drilling ¼-in. holes 7¾ in. deep with an automatic machine developed by Buhr Machine Tool Co., Ann Arbor, Mich.

For this operation, it was more important to keep tool costs per piece low than to have a low machine cost. Twist drills, because they are reliable, low in cost and available from stock, were chosen. The Buhr Economatic in which the twist drills are used was designed to minimize both drill breakage and the damage that could result from broken drills.

Five Passes — The workpiece is an automobile steering-gear housing and the hole is a ¼-in. diam oil passage. Hole size isn't critical, so Buhr engineers decided to drill it in five passes. Each pass adds to the depth, but with a slightly smaller diameter. The last pass, with a ¼-in. drill, completes the hole to depth.

Gradually decreasing drill diameters in this way reduces rubbing and assures good clearing of the chips.

Depth added by each of the five steps was computed so total cycle times for each pass is the same. This gives optimum infeed rates, cutting speeds, chip loads and thrusts for each drill diameter.

Ten At Once — As for the machine itself, five hydraulic-feed units are arranged around an automatic six-position index table. Each feed unit carries two high-speed spindles for drills of the same size. Two workpieces are hydraulically clamped in each of the six holding-fixture positions.

Automatic cycles include rapid forward, feed, positive stop and reverse. Times for these steps vary at the different heads, but each cycle totals 27 seconds.

The machine continuously checks drill condition. A proximity switch pickup is located at a set distance from the drill and between the two drill-support bushings. When the drill is fully retracted, its point comes under the midpoint of this pick-up.

The metal of the drill provides a path for flux lines, which forms an electrical circuit. If the drill breaks, the circuit is broken and this amplified signal shuts down the machine. A lamp shows which drill is broken.

Replacement of the broken drill will close the proximity control circuit. The control relay then automatically closes and the machine is ready to resume operation. A selector switch located at each of the feed units can be set to bypass units during setup and maintenance.

MISSILES DEPEND ON AIRCRAFT QUALITY STEEL* from

Acme-Newport

**Plate, sheet and strip in alloy and carbon grades*

In selecting Acme-Newport steel for important airplane parts, missiles and Jatos, prime and sub-contractors recognize the uniformly high quality of this mill's output. Principal grades thus utilized are aircraft quality plate, sheet and strip, including the vital chrome-molybdenum AISI 4130 type. They consistently respond properly to heat treatment, meet the uncompromising demands of national defense with the same dependability that has marked this basic steel producer's 72 years of service to industry. Discuss your needs with Acme-Newport and let them outline their facilities and service.

Acme-Newport Steel COMPANY

NEWPORT, KENTUCKY

A SUBSIDIARY OF ACME STEEL COMPANY

RED CIRCLE SERVICE EXPEDITES YOUR RUSH ORDERS

New Catalogues And Bulletins

Money-saving products and services are described in the literature briefed here. For your copy just circle the number on the free postcard, p. 67.

Trimmers

The sliding knife principle of trimming drawn shells is discussed in a 4-page folder. It introduces a "revolutionary concept" in cutting off drawn shells. Capacity is up to 800 an hour, any shape within 6-in. diam. (Dayton Rogers Mfg. Co.)

For free copy circle No. 1 on postcard, p. 67

Millers

A comprehensive 20-page brochure gives data on an extensive line of Rigidmils (milling machines). Specifications and data covers a wide variety of these millers. (Sundstrand Machine Tool Co.)

For free copy circle No. 2 on postcard, p. 67

Flow Rack

The modern approach to "live storage" is described in new literature. (Rapids-Standard Co.)

For free copy circle No. 3 on postcard, p. 67

Circuit Breakers

Industrial molded case circuit breakers shown in a bulletin have matching enclosures. (Circuit Protective Devices Dept., General Electric Co.)

For free copy circle No. 4 on postcard, p. 67

Grinders

A revised catalog illustrates 6- and 10-in plain grinders. (Landis Tool Co.)

For free copy circle No. 5 on postcard, p. 67

Phosphate Coating

Phosphate castings for steel described in a 4-page brochure bond paint and protect metal from underfilm corrosion. These coatings easily, economically apply to surfaces via dipping, spraying, or brushing. (American Chemical Paint Co.)

For free copy circle No. 6 on postcard, p. 67

Industrial Photography

"Photography Serves Engineering" describes how films can expedite engineering design and reduce work by skilled personnel. (E. I. du Pont de Nemours & Co.)

For free copy circle No. 7 on postcard, p. 67

Diecast Nuts

Newly-developed standard specifications cover all types of diecast zinc alloy threaded fasteners. Just issued are three standard specification sheets. These cover senior, junior, and "economy" diecast wing nuts. (Gries Reproducer Corp.)

For free copy circle No. 8 on postcard, p. 67

Electric Motors

A 12-page 1958 motor application guide is designed to make motor selection easy. (Century Electric Co.)

For free copy circle No. 9 on postcard, p. 67

Tapes, Adhesives

Tapes and adhesives are detailed in a 12-page pamphlet. Easy-to-read tables briefly describe each product, its outstanding properties and its application. In addition, government specifications, tensile strength and price list references are listed. (Permacel-Lepage's Inc.)

For free copy circle No. 10 on postcard, p. 67

Record Controllers

A catalog describes the complete line of Brown rectangular case, filled system thermometers. These indicators, recorders, transmitters, and electric or pneumatic control instruments are covered in detail in the new 56-page catalog. (Industrial Div., Minneapolis-Honeywell Regulator Co.)

For free copy circle No. 11 on postcard, p. 67

Temperature, Humidity

Constant temperature and humidity control units for testing laboratories are outlined in a 4-page bulletin. (Midland-Ross Corp.)

For free copy circle No. 12 on postcard, p. 67

Weldrod

Data charts now available tell about bronze welding electrodes and filler rod. Included is information on comparative bronze electrodes, melt rates and efficiencies, electrode and filler rod specifications, and recommended currents. (Ampco Metal, Inc.)

For free copy circle No. 13 on postcard, p. 67

Heavy Forgings

In 12-pages, a bulletin details facilities for making heavy, precision forgings. Forge, heat-treat and finish machining setups are illustrated; typical forged products and forging weldments appear. (For free copy write on company letterhead to Titusville Forge Div., Struthers Wells Corp., Titusville, Pa.)

Electric Contacts

New electrical contacts are introduced in a bulletin. These contacts are made on automatic machines from special rod stock. This stock contains a firmly bonded core of a suitable contact material. Body is usually free-machining yellow brass. Fansteel Metallurgical Corp.)

For free copy circle No. 14 on postcard, p. 67

For truly engineered, truly trouble-free bronzes, specify Federated Silicon Bronzes (50% better ductility, tensile strength up to 65,000 psi); Aluminum Bronzes (heat treated, tensile strength as high as 120,000 psi, with correspondingly high yield strength); and Manganese Bronzes (as-cast tensile strength 125,000 psi, good ductility, high hardness). Federated Engineered Bronzes are the end results of highly perfected production techniques and continuous quality control procedures developed by experienced metallurgists in Asarco's Central Research Laboratory. Ask your Federated field man about Engineered Bronzes and Federated's complete line of quality-controlled copper base casting alloys. Federated Metals Division, 120 Broadway, New York 5. In Canada: Federated Metals Canada, Ltd., Toronto and Montreal.

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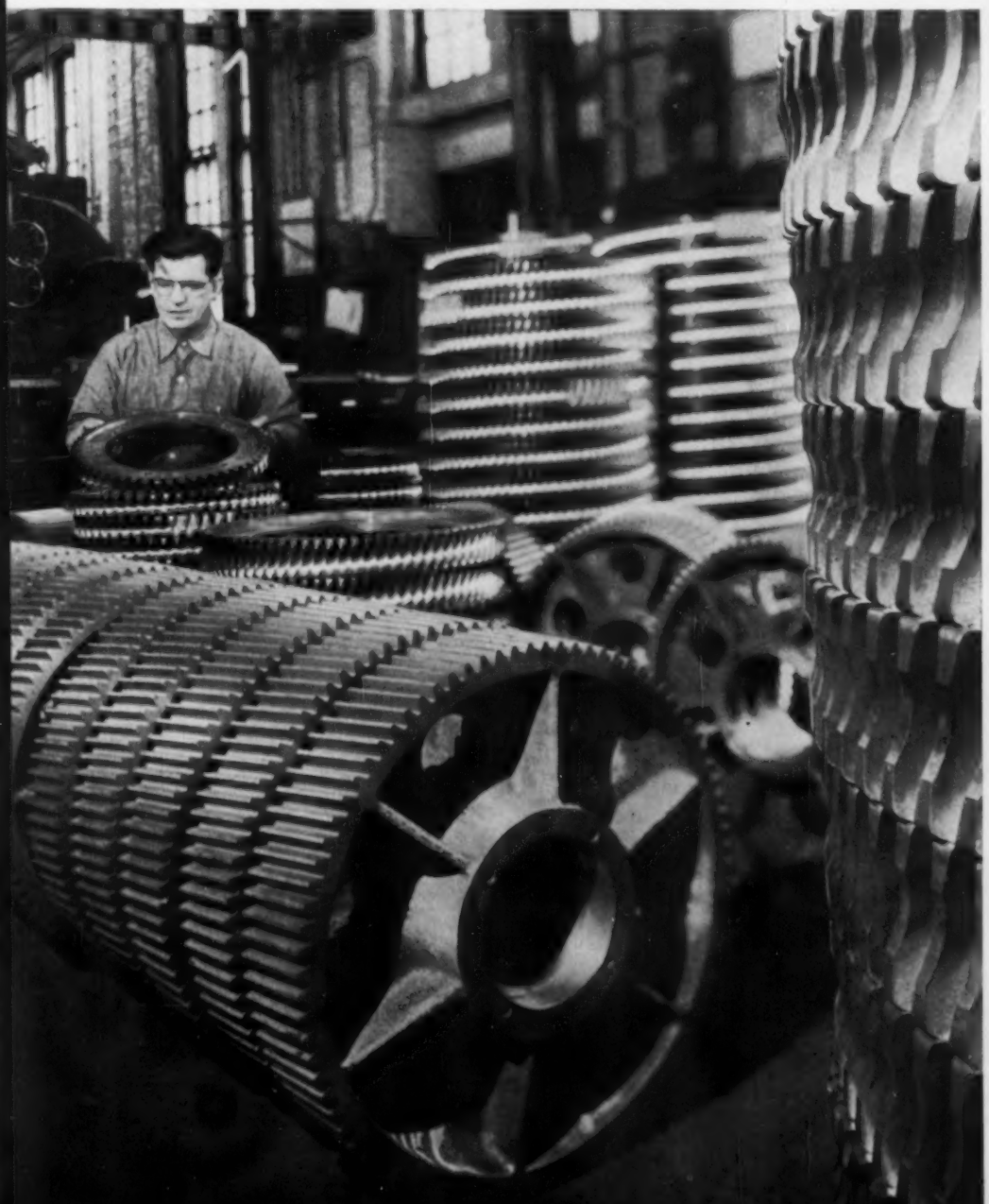


ASARCO

AMERICAN SMELTING AND REFINING COMPANY

integrated CRUCIBLE steel service

Local Crucible personnel provide service in depth, ranging from quick reports on steels available to expert assistance with metal working problems.

Average warehouse staff is backed up by Crucible Metallurgists who, although located at mills, will travel.

maintains broad range of local customer services

– *ranges from in-stock deliveries to metallurgical research*

Here's *service in depth*, made possible by Crucible's integrated operation. It starts with in-stock deliveries of the steels you need and goes on to provide complete technical assistance for engineers, production, toolroom and maintenance men. And the entire service is available from all of Crucible's 27 warehouses –

(1) *Deliveries from local stocks* of 16,000 specialty steel items, including all grades, shapes and sizes.

(2) *Basic specialty steel data* – complete breakdowns on properties, characteristics, as well as machining and fabrication details. (Warehouse account salesmen can frequently recommend the best steel for the end use.)

(3) *Metalworking assistance* with unusual machining and fabricating problems – by trained, experienced sales-service engineers who specialize in tool steels, stainless, alloys.

(4) *Metallurgical research* – help in developing steels for tomorrow's more exacting applications from Crucible's metallurgists, who will come to your plant on call.

Here's what one purchasing agent recently had to say about this over-all service: "We need lots of help with new steels – ones we haven't used before. The reason we rely on Crucible warehouses is because their men know the answers – or can get them for us quickly."

Why not simplify your own specialty steel purchasing problems by taking advantage of this integrated service? *Crucible Steel Company of America, Dept. PG06, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

Crucible metallurgists will come to your plant, if necessary, to help engineers use new steels or metals like titanium.

Sales service engineers' experience with fabricating, machining problems can solve toolroom and production problems.

Truck drivers speed orders for overnight delivery to you — or earlier if your order is an "emergency."

TOOL STEELS – Water, oil, air hardening, shock resisting, hot work, plastic and die casting steels in all forms, including bars, sheets, plates, drill rod, hollows, forgings and flat ground stocks

HIGH SPEED STEELS – Crucible's famous "Rex" steels: Rex Thrift Finish rounds, hot rolled and cold drawn flats and squares, drill rod, forgings, sheets, plates, and tool bits

STAINLESS STEELS – Bars, sheet, strip, wire, cold heading wire, metalizing wire, plates, angles

FREE MACHINING STEELS – Crucible Max-El rounds, hexagons, plates and brake die steel

ALLOY STEELS – Bars, billets, strip and sheet

COLD ROLLED CARBON SPRING STEELS

DRILL STEELS – Wing or section twisted auger drill steels, hollow and solid drill steels

ALUMINUM EXTRUSION DIE STEELS

HOLLOW TOOL STEEL

WELDING AND HARD FACING ROD

PLASTIC MOLD STEELS

PERMANENT MAGNETS

— and many others

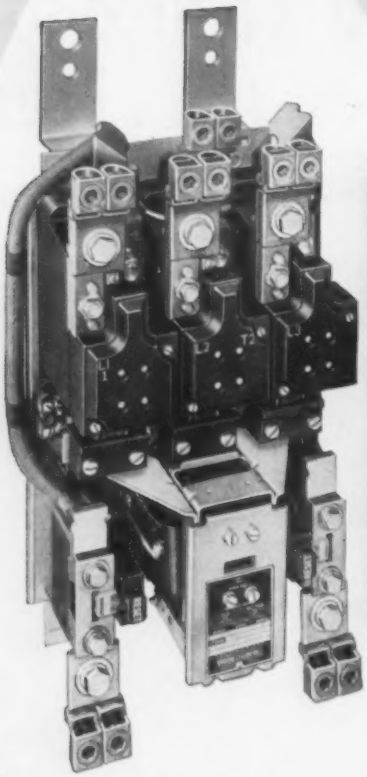
Teletype operators get direct reports on quantities available everywhere in the warehouse system — from Crucible's inventory-control computer room.

MONTHLY STOCK LIST

Keep-up-to-date on the specialty steels available—when they're available! Ask your local Crucible warehouse to send you its monthly stock list.

CRUCIBLE STEEL COMPANY OF AMERICA

Branch Offices and Warehouses: Atlanta • Baltimore • Boston • Buffalo • Charlotte • Chicago • Cincinnati • Cleveland • Dallas • Dayton • Denver Detroit • Grand Rapids • Harrison • Houston • Indianapolis • Los Angeles • Milwaukee • New Haven • New York • Philadelphia • Pittsburgh Portland, Ore. • Providence • Rockford • San Francisco • Seattle • Springfield, Mass. • St. Louis • St. Paul • Syracuse • Toronto, Ont.



NEW

SQUARE D Vertical Action SIZE 5 STARTER

Smaller! REQUIRES ONLY 270 SQUARE INCHES OF SPACE

DESIGN LEADERSHIP FEATURES IN SQUARE D's COMPLETE LINE OF VERTICAL ACTION STARTERS—SIZE 0 through 5

What's most important in a motor starter?

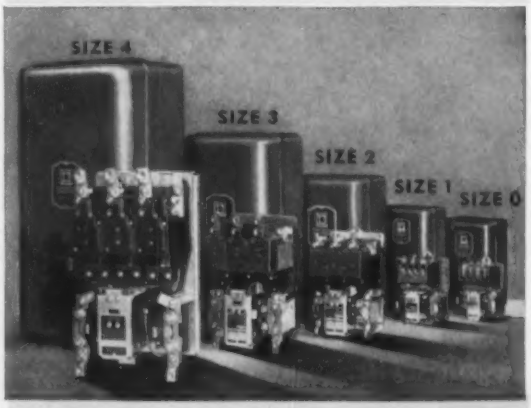
Performance and **long life** come first, naturally—and Square D's straight line guided motion and heavy-duty silver alloy contacts assure both. But that's only the beginning—

Fast wiring is important, too. Square D gives you a lot of wiring space and time-saving solderless terminals.

Easy maintenance rates high. The coils, contacts and overload relays on all Square D starters can be changed in a jiffy... without disturbing external connections. A screwdriver is all you need. And—

"Off-the-Shelf" Parts Kits make normal maintenance and "on-the-job" modifications easier than ever. Packaged parts include interlocks, contacts, coils, overload relays, pushbuttons and selector switches. They're easy to buy, easy to identify and faster to install.

For the complete story, write for Bulletin 8536 Square D Company, 4041 N. Richards St., Milwaukee, 12, Wis.



EC&M HEAVY INDUSTRY ELECTRICAL EQUIPMENT...NOW A PART OF THE SQUARE D LINE

SQUARE D COMPANY

FREE LITERATURE

Continued

These publications describe money-saving equipment and services . . . they are free with no obligation . . . just circle the number and mail the postcard.

No-Leak Tubing

Dimensions, pressures and performance properties are given in an 8-page booklet for Grayloc tubing. This tubing boasts a joint which provides positive leak resistance at high pressures. (Jones & Laughlin Steel Corp.)

For free copy circle No. 21 on postcard

Cutting Tools

A cutting tool catalog lists all of one firm's high speed steel and carbide cutters. It contains 44 pages. (Severance Tool Industries, Inc.)

For free copy circle No. 22 on postcard

Ball Lockpin

Ball type locking pins, positive locking yet quick releasing, are outlined in a folder of data sheets. (D. W. Price Corp.)

For free copy circle No. 23 on postcard

Binding Posts

Five-way binding post connectors illustrated in a bulletin come in color choices of red, white, blue, yellow, green and black. They have gold-plated finely machined brass parts for quick, easy soldering, high electrical contact and long life. (Superior Electric Co.)

For free copy circle No. 24 on postcard

Welding Wire

Recent analysis changes in one firm's automatic welding and metal spray wire are included in a 4-page folder. It details "as-welded" physical properties, gives analysis, tensile strength, elongation, average Rockwell hardness indications and lists typical uses for gas welding rods, bare electrodes, automatic welding wire and metal spray wire. (Page Steel & Wire Div., American Chain & Cable Co.)

For free copy circle No. 25 on postcard

Turret Drill

An automatic hydraulic turret drill is featured in a dozen-page brochure. It covers 6 and 8 spindle models. (Burg Tool Mfg. Co.)

For free copy circle No. 26 on postcard

Weatherproof Seal

Literature announces a new, long-lasting sealing material. It's unaffected by extreme temperatures, expansion or contraction. It forms permanent weather-tight seals for cracks and joints in concrete, brick, metal, wood or virtually any building material. (Stonhard Co., Inc.)

For free copy circle No. 27 on postcard

Handling

Under the title "7 Ways to Cut Costs," a booklet explains how many material handling methods can be developed through the versatility of a single machine. (Frank G. Hough Co.)

For free copy circle No. 28 on postcard

Metal Punches

Bench hand metal punches are covered in two new folders. Punch capacity for one tool is a ⅜-in. hole through ¼-in. mild steel; for another, it's a ¼-in. hole in ¼-in. mild steel. (Whitney Metal Tool Co.)

For free copy circle No. 29 on postcard

Corrosion-Proof

How a corrosion-proof materials manufacturer also offers his own experienced construction services is fully explained in a bulletin. Split responsibility between manufacturer and constructor is no longer necessary; the entire job can be completed with one source of re-

Postcard valid 8 weeks only. After that use own letterhead fully describing item wanted. 7/31/58

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No postage necessary if mailed in the United States

POSTAGE WILL BE PAID BY

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BUSINESS REPLY CARD

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Postcard valid 8 weeks only. After that use own letterhead fully describing item wanted. 7/31/58

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FREE LITERATURE

sponsibility. (Atlas Mineral Products Co.)

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Clad Material

The manufacture of Hortonclad is detailed in a 32-page brochure. Hortonclad is a composite metal produced by a flux-free high strength bonding process. This provides an integral and continuous bond between an alloy or special metal and its backing plate. (Chicago Bridge & Iron Co.)

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Vacuum Gages

Quick, convenient measurement of high vacuum on production systems with laboratory accuracy are possible with a ruggedly built shock-resistant vacuum gage. Gage scales for four different models are reproduced actual size in a data sheet. (F. J. Stokes Corp.)

For free copy circle No. 32 on postcard

Castings

Dependable castings in carbon, low alloy or stainless steels are available from a firm making available a new folder. It describes facilities of the company. (Donegal Steel Foundry Co.)

For free copy circle No. 33 on postcard

Drives, Couplings

Two bulletins announce a new development in dry fluid drives and couplings. These compact, economical drives and couplings are designed for ¼, ⅓, ½ and ¾ hp motors at 1750 rpm. (Dodge Mfg. Corp.)

For free copy circle No. 34 on postcard

Vibration Mounts

Data and prices for machine tool mountings appear in a 4-page bulletin. It tells: (1) how to determine if steel springs, rubber or cork should be used as machine mountings; (2) how to figure size and quantity of mountings needed; (3) prices for three types of universally adaptable mountings. (The Korfund Co., Inc.)

For free copy circle No. 35 on postcard

Spot Welders

Featured in a new bulletin are a spot welder and a projection welder. These air-operated press type, low impedance, single phase welders can be used for a wide range of high production fabricating applications. (Sciaky Bros., Inc.)

For free copy circle No. 36 on postcard

Cranes

Overhead travelling cranes are covered in a 20-page bulletin. Included are double girder and single girder types in both top-running and underhung designs. (Robbins & Myers, Inc.)

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Tool Steel

New, pre-colored dark blue, oil hardening flat stock is described in a circular. This tool steel is ready for marking or layout, right from the envelope. It eliminates bluing and drying. (Brown & Sharpe Mfg. Co.)

For free copy circle No. 38 on postcard

Micro Switch

A data sheet describes a new nylon-enclosed mercury switch. It's fabricated of materials which are highly resistant to effects of water, oil, alkalis and acids. (Micro Switch Div., Minneapolis-Honeywell Regulator Co.)

For free copy circle No. 39 on postcard

Coolant Separators

A 4-page bulletin announces a new line of magnetic coolant separators. They come in four capacities: 25, 50, 75 and 100 gpm. (Sundstrand Machine Tool Co.)

For free copy circle No. 40 on postcard

Magnesium Alloys

Design and shop characteristics of magnesium-thorium alloys are described in a new booklet. It discusses magnesium alloys for elevated temperature use. (Dow Chemical Co.)

For free copy circle No. 41 on postcard

New easier way

... to use stainless steel lock wire!

Note how the lock wire, uncoiling from the inside, is dispensed as needed from a hole in the top of this compact 1-pound package. No wild uncoiling! Moreover, the wire is better protected, handles easier and faster, with less waste, and with greater safety!

Here is a new National-Standard packaging development that is a natural for most safety lock wire uses in equipment manufacture, assembly and servicing.

For production operation requiring larger capacities, National-Standard offers lock wire on practical 5 and 10-pound disposable spools that may be spindle-mounted.

Check with National-Standard on the spooling of your choice and on stainless steel lock wire in any diameter from 0.020 to 0.067 and to government specifications: QQ-W-423, AN-W-24, MIL-W-6713 or AMS-5685-C.

NATIONAL NS **STANDARD**

DIVISIONS: NATIONAL-STANDARD, Niles, Mich.; *tire wire, stainless, music spring and plated wires*
WORCESTER WIRE WORKS, Worcester, Mass.; *music spring, stainless and plated wires, high and low carbon specialties* • **REYNOLDS WIRE, Dixon, Ill.;** *industrial wire cloth*
WAGNER LITHO MACHINERY, Secaucus, N. J.; *metal decorating equipment* • **ATHENIA STEEL, Clifton, N. J.;** *flat, high carbon spring steels*

Computer Guides Blast Furnace

A new Soviet computer under test helps operators accurately control blast furnaces. Its use may boost Russian pig iron output by a million tons a year.

▪ The Soviet steel industry is now testing a computer to control blast furnaces. According to a talk by A. K. Adavashyan, who is listed as manager of the Energetics-Metal Trust, it should boost Soviet pig iron output by 1-million-tons a year. And it will save 750,000 metric tons of coke, he claims.

He says 96 pct of last year's Soviet pig iron made came from fully mechanized furnaces. This, he points out, means an extra 4-million metric tons of iron.

Not Automated Yet—The computer is now under test in one of the Azov plant blast furnaces, near Rostov. Its data are based on formulas by Soviet professor Sorokin. They involve 39 variables, some changing rapidly. Automation is not total yet; some slowly changing factors are still being fed into the computer manually.

Once programmed, these computers analyze all changes from optimum. Then they feed back the orders necessary to bring the furnace back to optimum smelting.

Testing On Furnaces—One such computer reportedly is being tested in a research laboratory; some of the control units are on test at furnaces.

Control units being tested, Adavashyan says, include an ultrasonic device for measuring iron level. Other units read temperature of the hearth and the molten iron and slag tapped, as well as the flow and weight of the charge on the skip hoist.

Produced to your order in WESTERN GERMANY

- PLATE STEEL
- CHEMICAL CONTAINERS
- WELDED CONSTRUCTIONS —ALL TYPES

Equip your overseas operations economically. Large German manufacturer will produce to your specifications. Direct access to rail and water transportation for all Europe, Middle East, Africa.

WRITE BOX G-752
Care *The Iron Age*, Chestnut & 56th Sts., Phila. 39, Pa.

Assembly

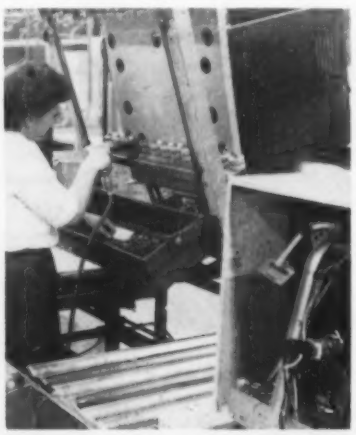
Production-line fastens Components easily

Fastening a completed television chassis in proper position within a cabinet is a simple matter at Westinghouse Electric Corp.'s television-radio division in Metuchen, N. J.

A fastening-unit operator first positions the cabinet, which has been preassembled to a paperboard shipping pallet, or an air-operated tilt section. This section is part of the final assembly line.

She then checks the chassis position which is jigged in the tilt fixture. Pushing twin buttons activating an air cylinder which vertically rotates the fixture, exposing the perforated pallet, she next fastens the chassis to the cabinet with self-tapping screws and air-driven screw driver.

Finally, she releases a safety catch and presses a "return" button. The special section returns to its normal position. From here she shoves the complete television set and pallet off the skate-wheel section onto an outbound roller conveyor.



Part of line flips over, making fastening easy.

Cleaning

Formulated to remove oxidation, dirt, grease, grime, light oil and carbon from aluminum, a new compound doesn't scar or etch the metal. Introduced by Parke-Hill Chemical Corp., Mount Vernon, N. Y., the compound contains a mild acid which is not harmful to the user.

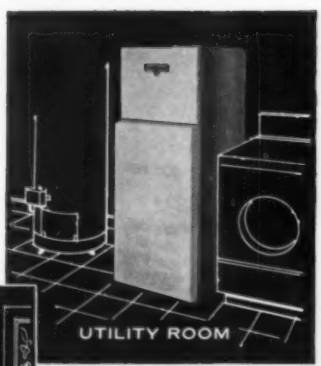
Want More Data?

You may secure additional information on any item briefed in this section by using the reply card on page 67. Just indicate the page on which it appears. Be sure to note exactly the information wanted.

Armstrong Furnace Co.
forms, stamps, then welds Youngstown Cold-Rolled Sheets to fabricate the cabinets for their complete line of oil and gas fired furnaces.

Accent on Excellence

Youngstown cold-rolled sheets



ARMSTRONG
FURNACE COMPANY

Today's modern home owners are partial to heating units that tuck back out of the way—blend right in with their over-all decor. As a result, more and more are turning to the beautiful new Counterflow units produced by Armstrong Furnace Company of Columbus, Ohio.

Because exterior appearance is so important to customer satisfaction, Armstrong fabricates cabinets for their complete furnace line from the finest flat-rolled steel available anywhere—Youngstown Cold-Rolled Sheets.

Wherever steel becomes a part of things *you* make, the high standards of Youngstown *quality*, the personal touch in Youngstown *service* will help you create products with an "accent on excellence".

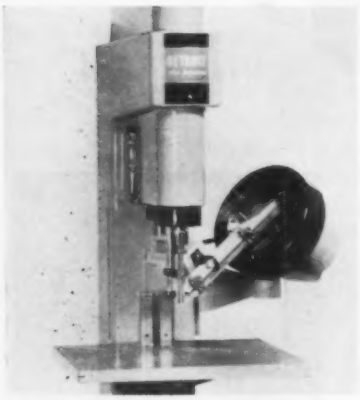
QUALITY YOUNGSTOWN SERVICE

THE
YOUNGSTOWN
SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel, Youngstown, Ohio

New Production Ideas

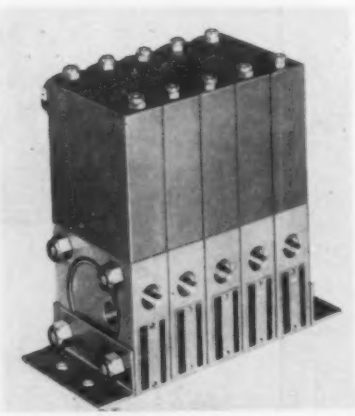
Equipment, Methods and Services



Power Screwdriver Handles Many Assembly Jobs

Highly accurate and flexible, this power screwdriver can handle a multitude of assembly operations. It embodies a new type control clutch, a new hopper driving mechanism, a new feed track and a new solenoid operated escapement mechanism. It's available as a floor type machine or without the floor pedestal, as a completely self-contained driving head for use in automatic assembly machines incorporating straightline transfers, etc. The unit has a driving range from No. 6 x 3/16-in. long to No. ¼ x 1½-in. long screws. It has no exposed moving parts. The drive motor and belt, pulleys, upper spindle and clutch assembly are enclosed in a single column; all parts are accessible for servicing. The clutch adjusts to a maximum of 120 in.-lb. (Detroit Power Screwdriver Co.)

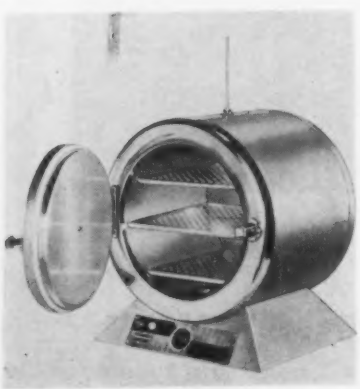
For more data circle No. 42 on postcard, p. 67



Very Thin Valves Fit Into Tight Spaces

For mounting on machinery where space is extremely limited, new solenoid control valves are only 1-in. thick. They are 3-in. wide, 6 1/16-in. high. Valves handle air or oil; pressures run to 125 psi, temperatures to 150°F. They come tapped for either ⅛ or ¼-in. pipe connection. Valves rate at 300 cycles per minute for continuous operation, up to 700 cpm for intermittent service on air at 120 psig. They come in normally closed or normally opened 3-way designs or with 4-way action. Each's valve housing is milled from solid aluminum bar stock. Valve chambers, in the straight through bore, are formed with metal spacers held rigidly in metal to metal end abutment. Spacers support and accurately position the O-ring seals. The stainless steel valve plunger is hollow and radically ported. (C. B. Hunt & Son, Inc.)

For more data circle No. 43 on postcard, p. 67



Oven Eliminates Cold Corners, Hot Spots

Thanks to a "circle of heat" design, this oven has uniform heat throughout its working chamber. Providing temperatures to 250°C (482°F), it has no cold corners nor hot spots. Strategically located heaters, fastened to the outside of the aluminum inner shell, conduct heat to the aluminum inner surface. This gives fast heat-up, uniform temperature throughout. The round design also increases natural air circulation. Including the door, the entire heating chamber is double walled and fully insulated. Using 115 or 230-v ac, the oven has a power selector switch which permits high or low input to heating elements. A bulb type thermostat, knob operated, controls temperature. Work chamber is 13 deep x 15-in. diameter. (Hevi-Duty Electric Co.).

For more data circle No. 44 on postcard, p. 67

The FIRST Oil-Free Water Soluble Coolant With Oily Properties

HAMIKLEER

Reg. U. S. Pat. Off.

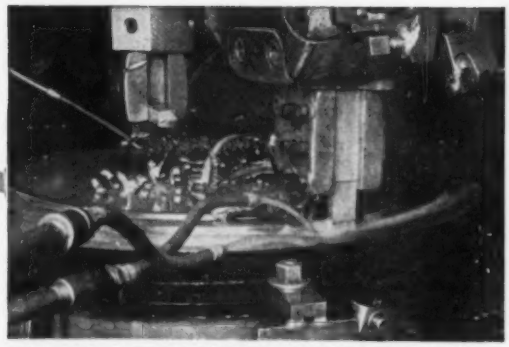
Offers 9 Outstanding Benefits

HAMIKLEER is the latest idea in coolants for metalworking. This oil-free, water-soluble coolant and rust preventive is receiving wide acclaim because it:

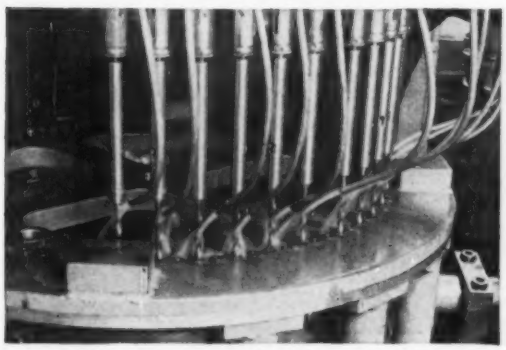
1. Eliminates the need for and cost of many different coolants as it can be used on a wide variety of applications.
2. Eliminates cleaning operations since it prevents rust.
3. Is rancid-proof, foam-proof, eliminating foul odors, increasing operator acceptance.
4. Eliminates rejects since it provides finer surface finishes, longer tool life.
5. Is transparent so gauging can be done without shut-downs.
6. Outlasts soluble oil emulsions by five times.
7. Costs less for make-up since only water is added.
8. Will not affect workers' skin.
9. Eliminates costly disposal problems. HAMIKLEER will not pollute streams if oils are kept out of mixture.

HAMIKLEER dissolves instantly in any water to make a clear, thin solution that can be made more dilute than is practical for ordinary soluble oils. The solutions are more efficient at the longest range dilution . . . as proved by years of experience on many different metalworking operations.

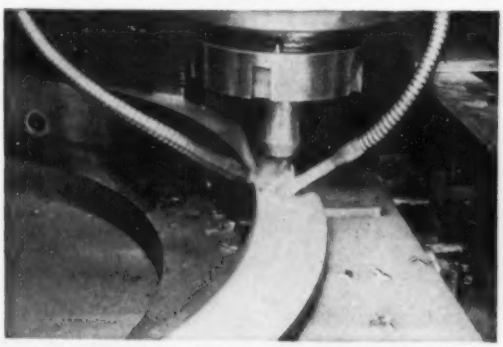
Write for a free sample to test on your own metalworking operations.



Bullard-Double Head Self-Indexing Machine. Stock: 410 stainless; Tools: carbide tips, both rough cuts; RPM: 40; Feed: .016; Micro Finish: 61; HAMIKLEER Dilution: 1:50.



Bausch Multiple Drill Press. Tool: High Speed Steel; Stock: 316 and 410 Stainless; RPM: 400; Feed: .003; Tolerance: ± .005 Micro-Finish: 125 (without reaming); HAMIKLEER Dilution: 1:50.



Cincinnati Hydrotel Contouring Machine. This is a milling operation, end cutting scallops. Tool: High Speed Steel, 3 flutes high; RPM: 200; Feed: 3"; Depth of Cut: .530; Micro Finish: 61; HAMIKLEER Dilution: 1:50.

This free test kit is sent to all HAMIKLEER users. It permits operators to test dilution right at the machine, saving considerable time.

HARRY MILLER CORP. HAMICO 4th & BRISTOL STREETS PHILADELPHIA 40, PA.

Manufacturers of
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Original Products and Processes Since 1936

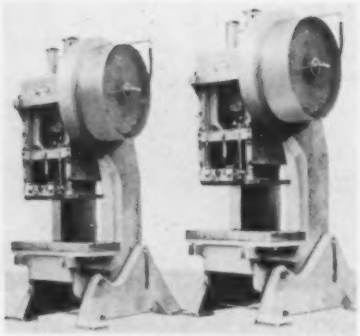
4th and BRISTOL STS., PHILA. 40, PA.

DAvenport 4-4000 *Service Representatives in Principal Cities*

Air-run Tools Speed Installing of Fasteners

Light fastening production jobs can be speeded up using a new series of air-powered tools. So states their maker, which points out that the tools use a new high-speed air motor. This motor gives the lightweight drills, screwdrivers and nut setters the power necessary for rapid fastening at production-line rates. Small in size, operators can handle the tools with ease. The motor's muffled exhaust reduces noise. A variety of interchangeable attachments are available to handle a wide range of jobs. (Gardner-Denver Co.)

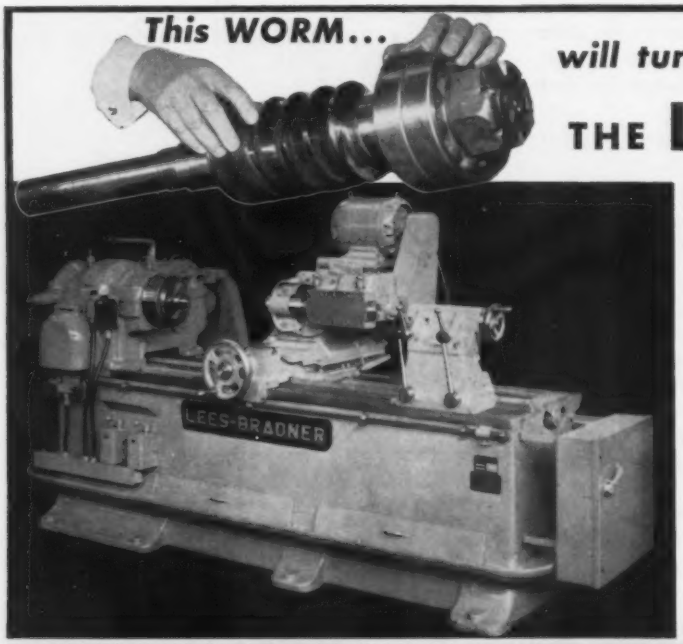
For more data circle No. 45 on postcard, p. 67



Welded OBI Presses Use an Air Friction Clutch

Open back inclinable presses in a new line are of welded steel construction. They boast use of an exclusive air friction clutch. Standard equipment on the press builder's straight side, underdrive and automatic feed presses, the clutch has a "low inertia" design. It results in a low wear rate. The reason is that few parts and low weight have to be picked up on clutch engagement. The brake is also air operated and spring set. Welded steel construction of the frames assures little deflection and vibration. Hence, units have long production life at standard stroking speeds, the maker states. Sizes run 25 to 200 tons. (Danly Machine Specialties, Inc.)

For more data circle No. 46 on postcard, p. 67



will turn better... thanks to...

THE LEES-BRADNER HT

Building precision into other machine tools is a unique feature of The Lees-Bradner Model HT Thread Milling Machine.

The worm illustrated above was produced by the Cleveland Worm and Gear Co. in one hour 23 minutes at a cutter spindle speed of 61 R. P. M. The pitch diameter of the worm was 3.728" with an outside diameter of 4.625".

Contact Lees-Bradner for complete information on fast, precision threading with the Model HT Universal Thread Milling Machine.

Details on Worm Gear Production

Hob Spindle Speed	61 R. P. M.
Circular Pitch	1.420"
Pitch Diameter	3.728"
Outside Diameter	4.625"
Threading Time	1 hour 23 min.
Material	2315 Steel
Weight of Worm	51.76 lbs.

the LEES-BRADNER Company

CLEVELAND 11, OHIO • U.S.A.

AT THE HOMESTEAD WORKS OF U. S. STEEL National Alloy Rollers carry USS "T-1" plate up to 45 feet long, 13 feet wide, and 2 inches thick through heat treating furnace.

AT LUKENS STEEL National Alloy Rollers have been in service more than 2½ years where plate up to 172 inches wide and 3 inches thick is heat treated.

National Alloy Rollers provide long service on Drever continuous plate Heat Treating Lines

Establishing better properties in steel plate through heat treating has become a continuous, high output operation at leading steel producers. As the leading specialist in high temperature, high alloy castings, National Alloy, cooperating with Drever, engineered, centrifugally cast and produced some of the largest high alloy rollers now in use to handle plate up to 3 inches thick and 172 inches wide. These rollers vary in diameter from 8 to 14 inches and are 20 feet long.

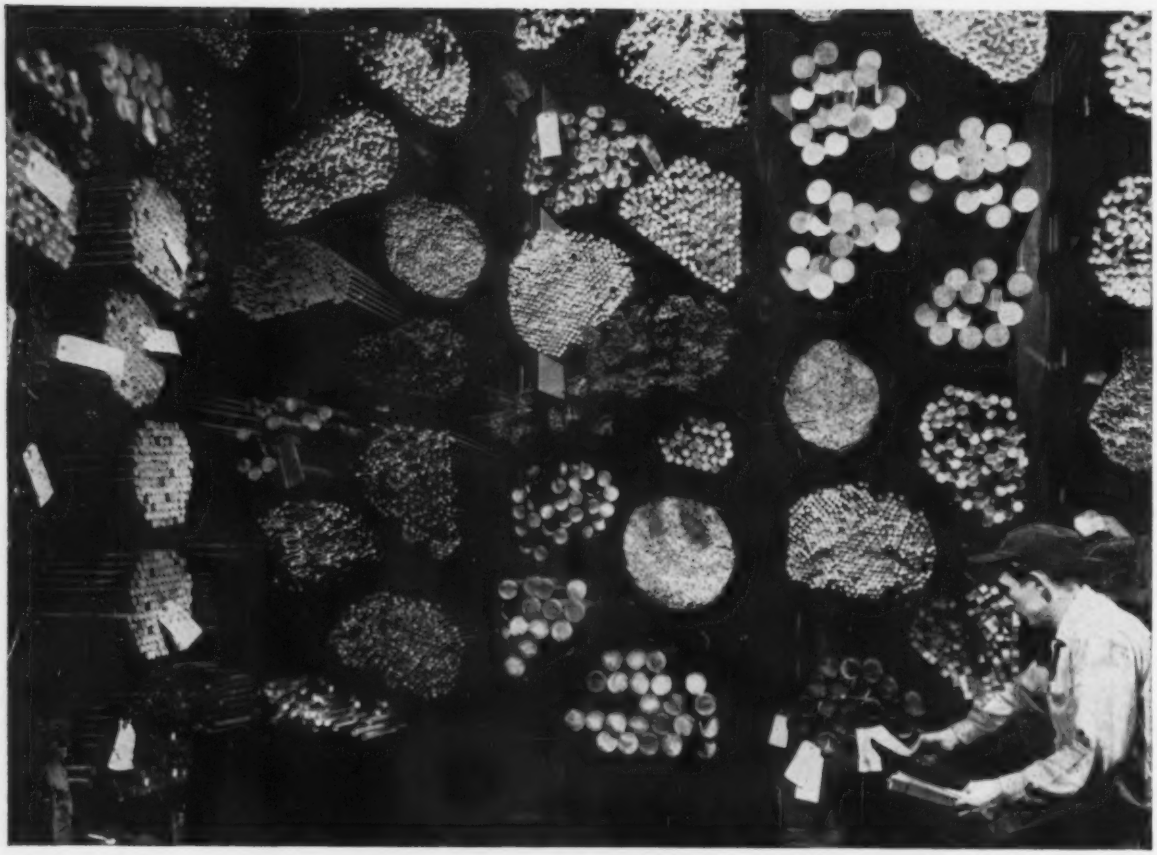
Meeting the ever-increasing demands of industry for high temperature, high volume equipment has given National Alloy unmatched experience in the development and manufacture of high alloy castings for maximum service. Consult National Alloy for a practical answer to your high temperature and high corrosion problems.

BLAW-KNOX

THE MARK OF QUALITY NA NATIONAL ALLOY

BLAW-KNOX COMPANY

National Alloy Division, Pittsburgh 38, Pennsylvania



3-Point Check List

FOR USERS OF COLD FINISHED BARS

☑ ***SIZE RANGE.*** Size ranges on hand at Ryerson are second to none, even including hard-to-get intermediate sizes. Shafting . . . screw machine steel . . . accuracy stock . . . machinery steel—every type of cold finished bar awaits your call.

☑ ***Know-How.*** Every day Ryerson steel men—*specialists* in cold finished bars—are in touch with machining problems . . . latest techniques. This unequaled fund of experience is ready to serve you in selecting a steel that gives faster machining to closer tolerances . . . better finish.

☑ ***Reliability.*** Year in and year out your most reliable source for cold finished bars is Ryerson. Call today. Prompt, personal service from experienced steel men proves that Ryerson service saves you time and money on your order for a few bars—or a truckload.

Widest size range always on hand, even including hard-to-get intermediate sizes.

Shafting stock receives special care to insure protection of finish and straightness.

RYERSON CERTIFIED QUALITY

RYERSON STEEL®

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Principal Products: Carbon, alloy and stainless steel—bars, structurals, plates, sheets, tubing—aluminum, industrial plastics, metalworking machinery, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK · BOSTON · WALLINGFORD, CONN. · PHILADELPHIA · CHARLOTTE · CINCINNATI · CLEVELAND DETROIT · PITTSBURGH · BUFFALO · INDIANAPOLIS · CHICAGO · MILWAUKEE · ST. LOUIS · LOS ANGELES · SAN FRANCISCO · SPOKANE · SEATTLE

The Iron Age Summary

Steel Price Hike May Be Nominal

U. S. Steel Corp. reportedly thinking in terms of $4 per ton.

Earlier indications were that the price hike would average about $5.50 per ton.

▪ The coming steel price increase may be smaller than had been expected. The IRON AGE has learned U. S. Steel Corp. is considering a price advance of only $4 per ton on major steel products. Earlier indications were that the price boost would average out to about $5.50 per ton.

The $4 increase would be about two-fifths of what many steel firms believe to be justified in view of the 26¢ an hour employment cost boost since the first of the year.

Steel Market Pickup — Meanwhile, the steel market has definitely turned the corner for the better. The market improvement had been apparent even before the Mideast crisis worsened. Thus far there is little so-called "scare" buying, but many steel users are quietly buttressing their inventories, just in case.

The mills appear to be playing the price situation "by ear." There's more to the long-awaited price "clarification" than meets the eye. Steel labor costs are only one of many factors being taken into account.

Behind Price Thinking — The largest steel producer reportedly is leaning toward a smaller price hike for these reasons: (1) It wants to make a contribution toward the fight against inflation, (2) it is aware of customer opposition to anything more than a nominal increase under current competitive conditions, and (3) offstage Government and Congressional pressure to hold the price line.

It's also possible that U. S. Steel could be thinking of steel labor negotiations in '59, when present contracts expire. A less-than-needed price boost now could be used as an argument against another steel wage boost next year.

Detroit No Help—Improvement in the steel order picture has come about without too much help from the auto companies. Detroit is holding back for the most part until it gets into production with new models. But steel shipments to automotive are expected to improve gradually to a peak in late September or early October.

In the past week there has been further quickening in orders for oil country pipe and linepipe as well as an improvement in other products, including hot-rolled bars. A large linepipe order totaling 490 miles has been placed and will require about 175,000 tons of steel pipe. Other orders may be placed later for smaller - diameter gathering lines.

Scrap Upsurge—The upsurge in steel scrap prices is based largely on the belief of scrap people that the steel market will continue to improve. Scrap brokers and dealers are reluctant to sell significant tonnages except at higher prices.

Steel Output, Operating Rates

	This Week	Last Week	Month Ago	Year Ago
Production (Net tons, 000 omitted)	1,609	1,539	1,687	2,035
Ingot Index (1947-1949=100)	99.0	95.6	105.0	125.7
Operating Rates				
Chicago	65.0	64.0*	69.0	80.0
Pittsburgh	51.0	49.0*	61.0	82.0
Philadelphia	66.0	65.0	65.0	83.0
Valley	49.5	47.0*	43.5	73.0
West	67.5	63.0*	70.0	102.0
Cleveland	54.5	50.0*	50.0	76.0
Buffalo	39.0	39.0	44.0	90.0
Detroit	62.0	59.0*	66.0	85.0
South	52.0	53.5	68.0	87.5
South Ohio River	40.0	38.0*	63.0	64.0
Upper Ohio River	75.0	75.0*	71.0	72.0
St. Louis	98.0	90.0*	93.0	79.0
Northeast	36.0	36.0*	35.5	37.0
Aggregate	59.0	57.0	62.5	79.5

*Revised

Prices At a Glance

(cents per lb unless otherwise noted)	This Week	Week Ago	Month Ago	Year Ago
Composite price				
Finished Steel, base	5.967	5.967	5.967	5.967
Pig Iron (Gross ton)	$66.49	$66.49	$66.49	$66.40
Scrap, No. 1 hvy (Gross Ton)	$40.83	$38.17	$35.17	$53.50
No. 2 bundles	$29.50	$27.17	$25.83	$44.67
Nonferrous				
Aluminum ingot	26.10	26.10	26.10	27.10
Copper, electrolytic	26.50	26.50	25-26.50	29.25
Lead, St. Louis	10.80	10.80	11.30	13.80
Magnesium	36.00	36.00	36.00	36.00
Nickel, electrolytic	74.00	74.00	74.00	74.00
Tin, Straits, N. Y.	95.50	95.125	94.50	96.75
Zinc, E. St. Louis	10.00	10.00	10.00	10.00

What's Ahead in Furnace Design?

Builders point out trend is toward furnaces for higher temperature work and faster heating cycles.

Currently the industrial furnace market belongs to the buyer although price increases may be coming.

▪ Industrial furnace makers say user needs will result in new equipment for higher temperature heating, faster heating cycles, and more use of vacuum and induction heating.

One furnace builder looking at industry trends expects "the greatest impact on furnace design will be felt in the high temperature field. This demand is getting greater as the months go by both in high temperature vacuum and high temperature open chamber furnaces."

"It will affect not only the type of heating elements used," he adds, "but also the choice of refractories able to withstand the high temperatures wanted."

Higher and Faster — Another manufacturer looks for "higher temperature equipment for speeding up present processes, for heat treating new high temperature alloys, and for research work."

In addition to these trends equipment makers are concentrating on more furnace mechanization, automatic handling of the work, and improved atmosphere and temperature control.

Buyer's Market—At present industrial furnace sales are slow, although more than half the manufacturers surveyed by The IRON AGE said they were improving. Builders admit deliveries are current, backlogs are down from a year ago, and selling is highly competitive. Because of this the majority expect sales for the industry this year will fall below 1957 levels.

Delivery Rundown — Currently furnace buyers can count on getting fast delivery. In most cases standard furnaces are supplied in 6-12 weeks, ovens in about 4-6 weeks. Specialized or tailor-made equipment naturally requires more time.

Here are some specific delivery estimates based on manufacturers' reports:

Single stack cover type furnaces, 4-6 weeks; box and pit type tempering furnaces, 4-6 weeks; billet heaters, 8 weeks; high frequency heaters, 8 weeks; vacuum arc melting furnaces, stock to 20 weeks, car bottom furnaces, 4 months; and annealing equipment, 6-12 months.

Price Increases?—There's a difference of opinion among furnace suppliers on the question of price increases. About two-thirds of those surveyed expect higher furnace prices later this year. The rest feel prices will hold steady at present levels.

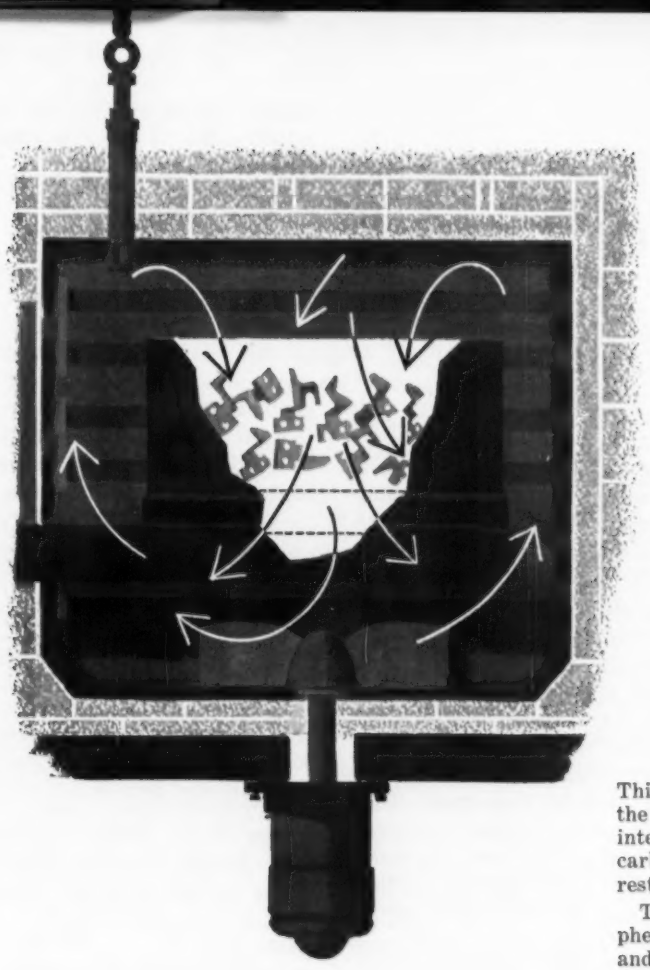
Sample comments on the price outlook include:

"Our prices depend on the price of our components such as steel, castings, forgings, bricks, motors, and controls. If steel prices rise, as many expect, it's likely metal component prices will go up also and our products will increase in proportion."

"We expect a slight increase in prices due to higher material and labor costs."

"Prices are firm now but will be higher by the fourth quarter."

UPWARD BOUND: Heat treating equipment, makers say, is trending toward units for higher temperature work. (Leeds & Northrup Co. photo)



it's new!

The L&N Tricarb method with controlled atmosphere... temperature... quench

This precision furnace is the most versatile in the history of heat treating. It can be used interchangeably for controlled case carburizing, carbonitriding, homogeneous carburizing, carbon restoration, or hardening.

The unique combination of Microcarb atmosphere control, Speedomax® temperature control and the controlled quench, makes possible significant quality improvements in production heat treating. New, efficient, L-O voltage radiant tube heaters are rugged, requiring minimum maintenance—are not subject to failures from carbon deposits when the furnace is used for carbonitriding without Microcarb control.

In many instances the Tricarb method has proved a practical solution to lower production costs . . . higher quality . . . more process automation . . . elimination of rejects and spoilage. In others it makes thoroughly practical the handling of many previously impossible or difficult heat treatments on a reproducible, production basis.

Folder T-620(17) explains the Tricarb Method. Write us at 4956 Stenton Ave., Phila. 44, Pa.

When small cams for electrical instruments are carburized in this Tricarb furnace, 6¢ per piece is saved on subsequent buffing operations because work comes from the furnace so clean.

LEEDS N NORTHRUP
Instruments Automatic Controls • Furnaces

Auto Steel Tonnages Will Hypo Sales

Despite absence of big orders from Detroit the market is making gains.

More support will come as auto firms boost tonnages from now until October.

▪ Even without the impact of large-scale buying by the automakers the market continues improving.

Several factors are behind the renewed interest in buying: Barren inventories are spurring many users into ordering. Others are reviewing their needs in the light of the uneasy international situation. And, in a few cases, customers are still hedge buying against price increases.

Net result is a gain in orders for sheet, bar, wire, and some types of pipe. Plates and shapes are not yet sharing in the upturn.

When Detroit does enter the order picture the pace will be further stepped up. Here's how one steelman predicts the auto steel buying time-table: From mid-August to mid-September auto firms will be building introductory models. Operating on tight production cycles, they probably won't be enlarging steel stocks.

From mid-September on, however, the new models will be pouring out in full volume. By the start of October automotive steel tonnages should hit their peak. That was the pattern followed last year when cold-rolled sheet shipments climbed in every month from July to October with a slight fall-off in November.

Linepipe—Electricweld pipe mill of Colorado Fuel & Iron Corp. at Claymont, Del. has resumed operations on an export order for 50,000 tons of pipe after a prolonged shutdown. The tonnage, expected to keep the mill busy for at least eight months, should lift Claymont operations to the 85 pct level within a week or so.

Jobber Pipe Discounts — Producers have reduced the jobber discount on direct carload shipments of standard pipe from 5 pct to 3 pct. Direct shipments are those ordered by the jobber but shipped direct from mill to user. The change was made, according to the producers, because jobbers were splitting or eliminating their commissions in bidding for business. The move has the effect of raising the selling price on these direct shipments.

Sheet and Strip—Mills say large tonnage orders are yet to come from automotive steel buyers. They expect August shipments of sheet and strip to top July but fall short of June levels. Late August and early September will see larger tonnages moving toward **Detroit.**

Bars—Even without much help from **Detroit** hot-rolled bar producers look for a 10 pct improvement in August orders. July shipments which were better than expected were about three-quarters of June tonnage.

Plates and Shapes—Mills were accepting plate and structural orders for July delivery right up to the end of the month. Their rolling cycles are short and light so customers can usually get quick deliveries. The August market for plate will be "soft," according to an **Eastern** plate mill spokesman.

Wire—Some users are still apparently buying manufacturers wire as a price hedge. However, producers are generally running 75 pct behind the June level on new orders. A pickup in August is expected.

Fairfield Wire Works of U. S. Steel's Tennessee Coal & Iron Div. will soon be making two more products—high tensile tying wire and ACSR (aluminum conductor, steel reinforced) core wire. Both products will be made on existing facilities, officials say, although new auxiliary equipment will be installed.

Delivery Promises at a Glance

	Pittsburgh	Chicago	Cleveland	Detroit	East	West Coast
CR Carbon Sheet	2-4 wks	2-3 wks	2-5 wks	3-5 wks	3-5 wks	4 wks
HR Carbon Sheet	1-2 wks	1-2 wks	1-4 wks	2-4 wks	2-3 wks	3-4 wks
CR Carbon Strip	3-4 wks	2-4 wks	2-5 wks	3-5 wks	3-5 wks	4-6 wks
HR Carbon Strip	1-2 wks	1-2 wks	1-4 wks	2-4 wks	2-3 wks	3-4 wks
HR Carbon Bars	1-2 wks	1-2 wks	2 wks	2-4 wks	2-4 wks	2-3 wks
CF Carbon Bars	1-4 wks	1-3 wks	1 wk	1-4 wks	1-3 wks	1-2 wks
Heavy Plate	1-4 wks	3-4 wks			3-5 wks	4-6 wks
Light Plate	1-2 wks	1-2 wks	1-4 wks		2-3 wks	4-6 wks
Merchant Wire	1 wk	2-3 wks	1 wk		Stock	3-4 wks
Oil Country Goods	Stock	1-2 wks	Stock		Stock	
Linepipe	1-8 wks	2-4 wks	3-4 wks		2-4 wks	4-6 wks
Buttweld Pipe	Stock	1-3 wks	1 wk	1-2 wks	Stock	2-4 wks
Std. Structurals	1-4 wks	1-3 wks		1-4 wks	1-4 wks	4 wks
CR Stainless Sheet	2-4 wks		2-3 wks	1-2 wks	1-2 wks	
CR Stainless Strip	2-4 wks		2-3 wks	1-2 wks	1-2 wks	

COMPARISON OF PRICES

(Effective July 29, 1958)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price advances over previous week are printed in **Heavy Type**; declines appear in *Italics*.

	July 29 1958	July 22 1958	June 30 1958	July 30 1957
Flat-Rolled Steel: (per pound)				
Hot-rolled sheets	4.925¢	4.925¢	4.925¢	4.925¢
Cold-rolled sheets	6.05	6.05	6.05	6.05
Galvanized sheets (10 ga.)	6.60	6.60	6.60	6.60
Hot-rolled strip	4.925	4.925	4.925	4.925
Cold-rolled strip	7.17	7.17	7.17	7.17
Plate	5.12	5.12	5.12	5.12
Plates, wrought iron	13.15	13.15	13.15	13.15
Stainl's C-R strip (No. 302)	52.00	52.00	52.00	52.00
Tin and Terneplate: (per base box)				
Tinplate (1.50 lb.) cokes	$10.30	$10.30	$10.30	$10.30
Tin plates, electro (0.50 lb.)	9.00	9.00	9.00	9.00
Special coated mfg. ternes	9.55	9.55	9.55	9.55
Bars and Shapes: (per pound)				
Merchant bar	5.425¢	5.425¢	5.425¢	5.425¢
Cold finished bar	7.30	7.30	7.30	7.30
Alloy bars	6.475	6.475	6.475	6.475
Structural shapes	5.275	5.275	5.275	5.275
Stainless bars (No. 302)	45.00	45.00	45.00	45.00
Wrought iron bars	14.45	14.45	14.45	14.45
Wire: (per pound)				
Bright wire	7.65¢	7.65¢	7.65¢	7.65¢
Rails: (per 100 lb.)				
Heavy rails	$5.525	$5.525	$5.525	$5.525
Light rails	6.50	6.50	6.50	6.50
Semifinished Steel: (per net ton)				
Rerolling billets	$77.50	$77.50	$77.50	$77.50
Slabs, rerolling	77.50	77.50	77.50	77.50
Forging billets	96.00	96.00	96.00	96.00
Alloy blooms, billets, slabs	114.00	114.00	114.00	114.00
Wire Rods and Skelp: (per pound)				
Wire rods	6.15¢	6.15¢	6.15¢	6.15¢
Skelp	4.875	4.875	4.875	4.875
Finished Steel Composite: (per pound)				
Base price	5.967¢	5.967¢	5.967¢	5.967¢

	July 29 1958	July 22 1958	June 30 1958	July 30 1957
Pig Iron: (per gross ton)				
Foundry, del'd Phila	$70.97	$70.97	$70.97	$70.38
Foundry, Valley	66.50	66.50	66.50	66.50
Foundry, Southern Cin'ti	73.87	73.87	73.87	70.67
Foundry, Birmingham	62.50	62.50	62.50	62.50
Foundry, Chicago	66.50	66.50	66.50	66.50
Basic, del'd Philadelphia	70.47	70.47	70.47	69.88
Basic, Valley furnace	66.00	66.00	66.00	66.00
Malleable, Chicago	66.50	66.50	66.50	66.50
Malleable, Valley	66.50	66.50	66.50	67.00
Ferromanganese 74-76 pct Mn, cents per lb‡	12.25	12.25	12.25	12.75
Pig Iron Composite: (per gross ton)				
Pig iron	$66.49	$66.49	$66.49	$66.40
Scrap: (per gross ton)				
No. 1 steel, Pittsburgh	$44.50	$40.50	$37.50	$55.50
No. 1 steel, Phila. area	36.50	34.50	33.50	52.50
No. 1 steel, Chicago	41.50	39.50	34.50	52.50
No. 1 bundles, Detroit	32.50	31.50	31.50	48.50
Low phos., Youngstown	44.50	41.50	38.50	57.50
No. 1 mach'y cast, Pittsburgh	51.50	48.50	48.50	58.50
No. 1 mach'y cast, Phila.	49.50	48.50	47.50	56.50
No. 1 mach'y cast, Chicago	51.50	48.50	45.50	53.50
Steel Scrap Composite: (per gross ton)				
No. 1 hvy. melting scrap	$40.83	$38.17	$35.17	$53.50
No. 2 bundles	29.50	27.17	25.83	44.67
Coke Connellsville: (per net ton at oven)				
Furnace coke, prompt	$15.38	$15.38	$15.38	$15.38
Foundry coke, prompt	$17.50-$19	$17.50-$19	$17.50-$19	$17.50-$19
Nonferrous Metals: (cents per pound to large buyers)				
Copper electrolytic, Conn.	26.50	26.50	25-26.50	29.25
Copper, Lake, Conn.	26.50	25.00	25.00	29.25
Tin, Straits, N. Y.	95.50†	95.125	94.50	96.75
Zinc, East St. Louis	10.00	10.00	10.00	10.00
Lead, St. Louis	10.80	10.80	11.30	13.80
Aluminum, virgin ingot	26.10	26.10	26.10	27.10
Nickel, electrolytic	74.00	74.00	74.00	74.00
Magnesium, ingot	36.00	36.00	36.00	36.00
Antimony, Laredo, Tex.	29.50	29.50	29.50	33.00

† Tentative. ‡ Average.

Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Steel Scrap Composite

Averages of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

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Bulls Take Over; Market Soars

In spite of only fair mill demand, the market reaches highest point since last fall.

Mills looking for tonnage are having trouble. Lack of industrial scrap hurts.

■ Bulls are in control and threaten to stampede the market. The big question today is how much higher prices will go.

Most of the price upsurge is based on anticipation. But there is a new strengthening of demand. Some mills are boosting production of semi-finished steel, trying to avoid putting on added blast furnaces to handle the expected bulge in steel demand in August and September.

Dealers believe they are in control and are holding off for what they hope will be even higher prices. As the market threatens to run away, mills which were not interested in scrap a week ago are today, but failing to get any low priced scrap.

The new No. 1 Heavy Melting Composite, $40.83, is the highest level since Oct. 1, 1957. Low point in the recent depressed market was $31.50 in late April, 1958.

Pittsburgh—Prices of all grades are up sharply as the long-awaited explosion hit. Two major local consumers are seeking to buy and the first tonnage buys in about a year are imminent. This activity which is matched in nearby markets, hits a market that was already tight, strong, and rising. Price of No. 1 heavy melting is up $4. Prices of secondary grades are up $3 to $4. Low phos, factory bundles and No. 1 railroad heavy melting all show big gains.

Chicago — The market again moved up $2 to $4 along almost the entire list. Factory bundles, stainless, and cast grades show particular strength. Scrap output is low; mills continue to consume substantial quantities as they build semi-finished stocks for an expected August pickup. Dealers are sitting tight on what they have.

Philadelphia — New contracts signed by the European steel and coal community for 15 cargoes of scrap during August and September set the stage for the biggest market surge this year. Prices of most grades rose $1-$2 on appraisal. Actual sales were made on cupola cast at $3 above quoted prices and low phos, up $1. Yard intake is low and no one is walking into a sale in the face of a strengthening market.

New York — A stronger tone dominates this market. New export orders are coming through, and local buying is anticipated. Offshore sales have boosted steelmaking grades $1 to a top of $27 for No. 1 heavy melting. Brisker buying has raised 430 stainless to $170 for prepared solids. Turnings are up in sympathy.

Detroit—While a test of actual strength must wait until industrial lists are out of the way this week, dealers are talking up a rising market on the basis of the very small list tonnage for August.

Cleveland—The market is gaining strength, with dealer grades very strong because of reduced auto lists. The Valley market went up $3 as two mills purchased prime dealer grades for $44 and industrial grades brought $1 more. Blast furnace grades went for $22 in Cleveland although mills are trying to hold off blast furnaces.

St. Louis—Heavy railroad lists, including 5000 tons of MOPAC scrap, brought sharply higher prices, and other scrap items are up on pressure from outside markets, which local mills must meet.

Birmingham — Increases of $3 per ton on primary grades indicated new strength this week and dealers and brokers anticipated further gains, especially in electric furnace grades. An openhearth consumer accepted some offerings of No. 1 heavy melting at an increase of $2.

Cincinnati — More furnaces are going into production at one area mill and others along the river are all in the market for scrap. The market is up $2 on appraisal, but will hinge on prices brought by area lists for August. Dealers are reluctant to sell in anticipation of higher prices.

Buffalo—Although the consuming market here remained quiet, the price levels moved up sharply. Price movement was in sympathy with sales made in nearby, related markets.

Boston—Steelmaking grades advanced $1 as the market developed a firm undertone. A further strengthening is looked for with an expected resumption of export in August. Dealers are holding out for better prices.

West Coast — No price changes are expected in the Coast areas in August. No new operating activity is slated. Dealers believe August will be a bleak month for them. Mills are taking just enough scrap to keep their reduced operations going.

SCRAP PRICES *(Effective July 29, 1958)*

Pittsburgh

No. 1 hvy. melting	$44.00 to $45.00
No. 2 hvy. melting	35.00 to 36.00
No. 1 dealer bundles	43.00 to 44.00
No. 1 factory bundles	47.00 to 48.00
No. 2 bundles	33.00 to 34.00
No. 1 busheling	43.00 to 44.00
Machine shop turn.	20.00 to 21.00
Mixed bor. and ms. turn.	20.00 to 21.00
Shoveling turnings	24.00 to 25.00
Cast iron borings	24.00 to 25.00
Low phos. punch'gs plate	47.00 to 48.00
Heavy turnings	35.00 to 36.00
No. 1 RR hvy. melting	47.00 to 48.00
Scrap rails, random lgth.	53.00 to 54.00
Rails 2 ft and under	56.00 to 57.00
RR steel wheels	49.00 to 50.00
RR spring steel	49.00 to 50.00
RR couplers and knuckles	49.00 to 50.00
No. 1 machinery cast.	51.00 to 52.00
Cupola cast.	42.00 to 43.00
Heavy breakable cast.	40.00 to 41.00
Stainless	
18-8 bundles and solids	185.00 to 190.00
18-8 turnings	105.00
430 bundles and solids	105.00 to 110.00
410 turnings	45.00

Chicago

No. 1 hvy. melting	$41.00 to $42.00
No. 2 hvy. melting	36.00 to 37.00
No. 1 dealer bundles	42.00 to 43.00
No. 1 factory bundles	48.00 to 50.00
No. 2 bundles	31.00 to 32.00
No. 1 busheling	41.00 to 42.00
Machine shop turn.	23.00 to 24.00
Mixed bor. and turn.	25.00 to 26.00
Shoveling turnings	25.00 to 26.00
Cast iron borings	25.00 to 26.00
Low phos. forge crops	52.00 to 53.00
Low phos. punch'gs plate	48.00 to 49.00
Low phos. 3 ft and under	45.00 to 46.00
No. 1 RR hvy. melting	47.00 to 48.00
Scrap rails, random lgth.	52.00 to 53.00
Rerolling rails	62.00 to 63.00
Rails 2 ft and under	57.00 to 58.00
Locomotive tires cut	52.00 to 53.00
Cut bolsters & side frames	50.00 to 51.00
Angles and splice bars	54.00 to 55.00
RR steel car axles	66.00 to 67.00
RR couplers and knuckles	51.00 to 52.00
No. 1 machinery cast.	51.00 to 52.00
Cupola cast.	45.00 to 46.00
Heavy breakable cast.	40.00 to 41.00
Cast iron brake shoes	41.00 to 42.00
Cast iron wheels	39.00 to 40.00
Malleable	55.00 to 56.00
Stove plate	43.00 to 44.00
Steel car wheels	49.00 to 50.00
Stainless	
18-8 bundles and solids	185.00 to 190.00
18-8 turnings	100.00 to 105.00
430 bundles and solids	100.00 to 105.00
430 turnings	55.00 to 60.00

Philadelphia Area

No. 1 hvy. melting	$36.00 to $37.00
No. 2 hvy. melting	32.00 to 33.00
No. 1 dealer bundles	36.00 to 37.00
No. 2 bundles	23.00 to 24.00
No. 1 busheling	36.00 to 37.00
Machine shop turn.	18.00 to 19.00
Mixed bor. short turn.	18.00 to 19.00
Cast iron borings	19.00 to 20.00
Shoveling turnings	21.00 to 22.00
Clean cast. chem. borings	24.00 to 25.00
Low phos. 5 ft and under	39.00 to 40.00
Low phos. 2 ft and under	41.00 to 42.00
Low phos. punch'gs	41.00 to 42.00
Elec. furnace bundles	37.00 to 38.00
Heavy turnings	30.00 to 31.00
RR steel wheels	44.50 to 45.50
RR spring steel	44.50 to 45.50
Rails 18 in. and under	57.00 to 58.00
Cupola cast.	40.00 to 41.00
Heavy breakable cast.	43.00 to 44.00
Cast iron car wheels	44.00 to 45.00
Malleable	56.00 to 57.00
Unstripped motor blocks	30.00 to 31.00
No. 1 machinery cast.	49.00 to 50.00

Cincinnati

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$35.00 to $36.00
No. 2 hvy. melting	29.00 to 30.00
No. 1 dealer bundles	35.00 to 36.00
No. 2 bundles	24.00 to 25.00
Machine shop turn.	15.00 to 16.00
Mixed bor. and turn.	15.00 to 16.00
Shoveling turnings	17.00 to 18.00
Cast iron borings	15.00 to 16.00
Low phos. 18 in. and under	41.00 to 42.00
Rails, random length	44.00 to 45.00
Rails, 18 in. and under	54.00 to 55.00
No. 1 cupola cast.	41.00 to 42.00
Hvy. breakable cast.	33.00 to 34.00
Drop broken cast.	45.00 to 46.00

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Cleveland

No. 1 hvy. melting	$39.50 to $40.50
No. 2 hvy. melting	30.50 to 31.50
No. 1 dealer bundles	39.50 to 40.50
No. 1 factory bundles	41.00 to 42.00
No. 2 bundles	24.50 to 25.50
No. 1 busheling	39.50 to 40.50
Machine shop turn.	17.00 to 18.00
Mixed bor. and turn.	21.00 to 22.00
Shoveling turnings	21.00 to 22.00
Cast iron borings	21.00 to 22.00
Cut structural & plates, 2 ft & under	43.00 to 44.00
Drop forge flashings	39.50 to 40.50
Low phos. punch'gs plate	40.50 to 41.50
Foundry steel, 2 ft & under	39.00 to 40.00
No. 1 RR hvy. melting	39.00 to 40.00
Rails 2 ft and under	53.00 to 54.00
Rails 18 in. and under	54.00 to 55.00
Railroad grate bars	14.00 to 15.00
Steel axle turnings	17.00 to 18.00
Railroad cast.	46.00 to 47.00
No. 1 machinery cast.	46.00 to 47.00
Stove plate	42.00 to 43.00
Malleable	58.00 to 59.00
Stainless	
18-8 bundles	175.00 to 185.00
18-8 turnings	95.00 to 100.00
430 bundles	90.00 to 95.00
430 turnings	35.00 to 40.00

Buffalo

No. 1 hvy. melting	$34.00 to $35.00
No. 2 hvy. melting	31.00 to 32.00
No. 1 busheling	34.00 to 35.00
No. 1 dealer bundles	34.00 to 35.00
No. 2 bundles	29.00 to 30.00
Machine shop turn.	14.00 to 15.00
Mixed bor. and turn.	15.00 to 16.00
Shoveling turnings	17.00 to 18.00
Cast iron borings	16.00 to 17.00
Low phos. plate	37.00 to 38.00
Structurals and plate, 2 ft and under	40.00 to 41.00
Scrap rails, random lgth.	47.00 to 48.00
Rails 2 ft and under	57.00 to 58.00
RR steel wheels	44.00 to 45.00
RR spring steel	44.00 to 45.00
RR couplers and knuckles	44.00 to 45.00
No. 1 machinery cast.	43.00 to 44.00
No. 1 cupola cast.	39.00 to 40.00

St. Louis

No. 1 hvy. melting	$36.00 to $37.00
No. 2 hvy. melting	32.00 to 33.00
No. 1 dealer bundles	36.00 to 37.00
No. 2 bundles	27.00 to 28.00
Machine shop turn.	16.00 to 17.00
Cast iron borings	18.00 to 19.00
Shoveling turnings	18.00 to 19.00
No. 1 RR hvy. melting	45.00 to 46.00
Rails, random lengths	45.00 to 46.00
Rails, 18 in. and under	50.00 to 51.00
Angles and splice bars	43.00 to 44.00
Std. steel car axles	65.00 to 66.00
RR specialties	44.00 to 45.00
Cupola cast.	43.00 to 44.00
Heavy breakable cast.	32.00 to 33.00
Cast iron brake shoes	35.00 to 36.00
Stove plate	42.00 to 43.00
Cast iron car wheels	40.00 to 41.00
Rerolling rails	59.00 to 60.00
Unstripped motor blocks	38.00 to 39.00

Birmingham

No. 1 hvy. melting	$33.00 to $34.00
No. 2 hvy. melting	27.00 to 28.00
No. 1 dealer bundles	33.00 to 34.00
No. 2 bundles	20.00 to 21.00
No. 1 busheling	33.00 to 34.00
Machine shop turn.	21.00 to 22.00
Shoveling turnings	22.00 to 23.00
Cast iron borings	12.00 to 13.00
Electric furnace bundles	36.00 to 37.00
Elec. furnace, 3 ft & under	34.00 to 35.00
Bar crops and plate	42.00 to 43.00
Structural and plate, 2 ft.	40.00 to 41.00
No. 1 RR hvy. melting	35.00 to 36.00
Scrap rails, random lgth.	45.00 to 46.00
Rails, 18 in. and under	49.00 to 50.00
Angles & splice bars	43.00 to 44.00
Rerolling rails	58.00 to 59.00
No. 1 cupola cast.	52.00 to 53.00
Stove plate	52.00 to 53.00
Charging box cast.	22.00 to 23.00
Cast iron car wheels	38.00 to 39.00
Unstripped motor blocks	41.00 to 42.00

Youngstown

No. 1 hvy. melting	$43.00 to $44.00
No. 2 hvy. melting	34.00 to 35.00
No. 1 dealer bundles	43.00 to 44.00
No. 2 bundles	28.00 to 29.00
Machine shop turn.	19.00 to 20.00
Shoveling turnings	23.00 to 24.00
Cast iron borings	23.00 to 24.00
Low phos. plate	44.00 to 45.00

New York

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$26.00 to $27.00
No. 2 hvy. melting	23.00 to 24.00
No. 2 dealer bundles	16.00 to 17.00
Machine shop turn.	7.00 to 8.00
Mixed bor. and turn.	10.00 to 11.00
Shoveling turnings	10.00 to 11.00
Clean cast. chem. borings	22.00 to 23.00
No. 1 machinery cast.	34.00 to 35.00
Mixed yard cast.	32.00 to 33.00
Charging box cast.	31.00 to 32.00
Heavy breakable cast.	31.00 to 32.00
Unstripped motor blocks	22.00 to 23.00
Stainless	
18-8 prepared solids	165.00 to 170.00
18-8 turnings	55.00 to 60.00
430 prepared solids	65.00 to 70.00
430 turnings	20.00 to 25.00

Detroit

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$29.00 to $30.00
No. 2 hvy. melting	22.00 to 23.00
No. 1 dealer bundles	32.00 to 33.00
No. 2 bundles	18.00 to 19.00
No. 1 busheling	29.00 to 30.00
Drop forge flashings	28.00 to 29.00
Machine shop turn.	11.00 to 12.00
Mixed bor. and turn.	12.00 to 13.00
Shoveling turnings	13.00 to 14.00
Cast iron borings	13.00 to 14.00
Low phos. punch'gs plate	29.00 to 30.00
No. 1 cupola cast.	38.00 to 39.00
Heavy breakable cast.	28.00 to 29.00
Mixed cupola cast.	39.00 to 40.00
Automotive cast.	41.00 to 42.00
Stainless	
18-8 bundles and solids	180.00 to 185.00
18-8 turnings	85.00 to 90.00
430 bundles and solids	90.00 to 95.00
410 turnings	20.00 to 25.00

Boston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$23.00 to $24.00
No. 2 hvy. melting	17.00 to 18.00
No. 1 dealer bundles	23.00 to 24.00
No. 2 bundles	15.00 to 16.00
No. 1 busheling	23.00 to 24.00
Machine shop turn.	5.00 to 6.00
Mixed bor. and short turn.	5.00 to 6.00
Shoveling turnings	8.00 to 9.00
Clean cast. chem. borings	14.00 to 15.00
No. 1 machinery cast.	31.00 to 32.00
Mixed cupola cast.	29.00 to 30.00
Heavy breakable cast.	28.00 to 29.00
Stove plate	27.00 to 28.00
Unstripped motor blocks	22.00 to 23.00

San Francisco

No. 1 hvy. melting	$32.00
No. 2 hvy. melting	30.00
No. 1 dealer bundles	28.00
No. 2 bundles	22.00
Machine shop turn.	15.00
Cast iron borings	15.00
No. 1 RR hvy. melting	32.00
No. 1 cupola cast.	45.00

Los Angeles

No. 1 hvy. melting	$32.00
No. 2 hvy. melting	30.00
No. 1 dealer bundles	$27.00 to 28.00
No. 2 bundles	17.00
Machine shop turn.	11.00
Shoveling turnings	13.00
Cast iron borings	13.00
Elec. furn 1 ft and under (foundry)	43.00
No. 1 RR hvy. melting	33.00
No. 1 cupola cast.	39.00

Seattle

No. 1 hvy. melting	$30.00
No. 2 hvy. melting	28.00
No. 2 bundles	22.00
No. 1 cupola cast.	36.00
Mixed yard cast.	36.00

Hamilton, Ont.

No. 1 hvy. melting	$30.00
No. 2 hvy. melting	26.00
No. 1 dealer bundles	30.00
No. 2 bundles	23.00
Mixed steel scrap	25.00
Busheling	20.00
Bush., new fact., prep'd.	30.00
Bush., new fact., unprep'd	24.00
Machine shop turn.	15.00
Short steel turn.	19.00
Mixed bor. and turn.	15.00
Rails, rerolling	39.00
Cast scrap	$45.00 to 50.00

Aluminum Producers Ponder Price Hike

None of the Big 3 has made up its mind as August 1 target date approaches.

It will be no surprise if the issue is not settled then when labor costs go up 20¢.

▪ As the week began, it was apparent that none of the Big 3 aluminum producers has made up its mind whether to boost prices to offset higher labor costs.

No one would be surprised if the question were still undecided on August 1, when employment costs are scheduled to rise about 20¢ an hour under contracts with the United Steelworkers.

Canadian Question Mark — The big question mark, as it was when top management started doing some heavy thinking on the subject (The IRON AGE, May 29, P. 50) is Aluminium Ltd.

The domestic producers are wondering whether the Canadian producer would be willing to go along and raise its prices to U. S. customers. Aluminium Ltd. forced the price down earlier this year. And the Canadian company is not faced with wage hikes on August 1.

The next question: If Aluminium Ltd. holds her price in the face of a domestic producers' hike, how much of the pig and ingot market would she take from the domestic producers?

Business Improving—The issues facing U. S. producers in making their decision don't end there. Business lately has been showing signs of improvement. Some observers say it might be some cautious inventory rebuilding, that would come to a sharp halt at a higher price. But a spokesman for one aluminum producer discounts this as a major factor. He believes the better buying is due to hedging and not real improvement in fabricator demand.

The aluminum producers are keeping a close watch on the steel industry, which has a similar problem. Some observers believe the relationship between steel and aluminum price problems is negative, at least as far as aluminum is concerned.

Watch Steel—They say if steel prices go up, so will aluminum prices. But if steel decides to hold the line, aluminum might still decide it had more to gain than to lose with a higher price.

Also, the domestic aluminum producers would like to have some official reaction to their request for government assistance against low-priced imports and Russian economic warfare, before making a price move. This is not likely by August 1.

Washington

There is a better-than-outside chance the embargo on shipment of copper from the Free World to Russia has been lifted.

The International Coordinating Committee, representatives of U. S., Canada, West Europe Nations and Japan, recently wound up its meeting in Paris. It has been laboring to liberalize the list of items that may not be shipped behind the Iron Curtain.

Here are the reasons some observers think copper may have been dropped from the list:

1) Announcement of the committee action is not officially scheduled until after Congress adjourns. Observers say this means some items dropped are likely to bring sharp criticism. Copper fits this category.

2) Unofficial reports say that 40 pct of the items on the former list have been dropped. This gives copper almost a 50-50 chance.

3) The United Kingdom has been under pressure from its merchants and nonferrous groups to hold out for removal of copper from the list.

The new list will not be made public as such. The only way for an exporter to find out is to apply for a license to ship copper behind the Iron Curtain.

The Domestic Minerals Stabilization Bill jumped another hurdle when the House Interior Committee reported out a version closely following the version already passed by the Senate. Key change: Congress will vote funds. Senate wants Interior Dept. to borrow money.

Tin prices for the week: July 23—95.25; July 24—96.000; July 25—96.25; July 28—95.75; July 29—95.50.*

Primary Prices

(cents per lb)	current price	last price	date of change
Aluminum pig	24.00	26.00	4/1/58
Aluminum ingot	26.10	28.10	4/1/58
Copper (E)	26.50	25-26.50	7/17/58
Copper (CS)	26.00	25.50	7/2/58
Copper (L)	26.50	25.00	7/17/58
Lead, St. L.	10.80	11.36	7/1/58
Lead, N. Y.	11.00	11.50	7/1/58
Magnesium ingot	36.00	34.00	8/13/56
Magnesium pig	35.25	33.75	8/13/56
Nickel	74.00	64.50	12/6/56
Titanium sponge	185-200	200-250	4/1/58
Zinc, E. St. L.	10.00	10.50	7/1/57
Zinc, N. Y.	10.50	11.00	7/1/57

ALUMINUM: 99% ingot frt allwd. COPPER: (E) = electrolytic, (CS) = custom smelters, electrolytic. (L) = lake. LEAD: common grade. MAGNESIUM: 99.8% pig Velasco, Tex. NICKEL: Port Colbourne, Canada. ZINC: prime western. TIN: see above; other primary prices, pg. 85.

NONFERROUS PRICES

MILL PRODUCTS

(Cents per lb unless otherwise noted)

ALUMINUM

(Base 30,000 lb, f.o.b. ship. pt., frt. allowed)

Flat Sheet (Mill Finish and Plate)

("F" temper except 6061-0)

Alloy	.032	.081	.136-.249	.250-3.
1100, 3003	44.6	42.3	41.1	41.7
5052	52.0	46.9	45.2	44.4
6061-0	49.4	45.0	43.2	43.1

Extruded Solid Shapes

Factor	6063 T-5	6062 T-6
6- 8	45.0-46.8	58.4-62.1
12-14	45.7-47.2	59.3-63.8
24-26	49.0-49.5	70.1-74.8
36-38	58.0-58.6	94.2-97.8

Screw Machine Stock—2011-T-3

Size*	¼	⅝-⅞	¾-1	1¼-1½
Price	61.0	60.5	59.0	56.6

Roofing Sheet, Corrugated

(Per sheet, 26" wide base, 16,000 lb)

Length"→	72	96	120	144
.019 gage	$1.411	$1.884	$2.353	$2.823
.024 gage	1.762	2.349	2.937	3.524

MAGNESIUM

(F.o.b. shipping Pt., carload frt. allowed)

Sheet and Plate

Type→ Gage→	.250 3.00	.250-2.00	.188	.081	.032
AZ31B Stand. Grade	.....	67.9	69.0	77.9	108.1
AZ31B Spec.	.....	93.3	95.7	108.7	171.3
Tread Plate	.....	70.6	71.7	.....	.....
Tooling Plate	73.0	.....	.....	.....	.....

Extruded Shapes

factor→	6-8	12-14	24-26	36-38
Comm. Grade.. (AZ31C)	69.6	70.7	75.6	89.2
Spec. Grade... (AZ31B)	84.6	85.7	90.6	104.2

Alloy Ingot

AZ91B (Die Casting) ..... 37.25 (delivered)
AZ63A, AZ92A, AZ91C (Sand Casting) 40.75 (Velasco, Tex.)

NICKEL, MONEL, INCONEL

(Base prices, f.o.b. mill)

	"A" Nickel	Monel	Inconel
Sheet, CR	126	106	128
Strip, CR	124	108	138
Rod, bar, HR	107	89	109
Angles, HR	107	89	109
Plates, HR	120	105	121
Seamless tube	157	129	200
Chot, blocks	...	87	...

COPPER, BRASS, BRONZE

(Freight included in 5000 lbs)

	Sheet	Wire	Rod	Tube
Copper	49.13	.....	46.86	49.82
Brass, 70/30	43.57	44.11	43.51	46.48
Brass, Low	46.03	46.57	45.97	48.84
Brass, R L	46.89	47.43	46.83	49.70
Brass, Naval	47.83	.....	42.14	50.99
Munts Metal	45.95	.....	41.76	.....
Comm. Bz.	48.30	48.84	48.24	50.86
Mang. Bz.	51.52	.....	45.74	.....
Phos. Bz. 5%	68.59	.....	69.09	.....

Free Cutting Brass Rod 30.28

TITANIUM

(Freight included in 5000 lbs)

Sheet and strip, commercially pure, $8.50-$10.10; alloy, $15.95; Plate, HR, commercially pure, $6.00-$6.75; alloy, $8.75-$9.50. Wire, rolled and/or drawn, commercially pure, $6.50-$7.00; alloy, $10.00-$11.50; Bar, HR or forged, commercially pure, $5.25-$5.50; alloy, $5.25-$6.35; billets, HR, commercially pure, $4.10-$4.35; alloy, $4.10-$4.20.

PRIMARY METAL

(Cents per lb unless otherwise noted)

Antimony, American, Laredo, Tex.. 29.50
Beryllium aluminum 5% Be, Dollar per lb contained Be $74.75
Beryllium copper, per lb conta'd Be. $43.00
Beryllium 97% lump or beads, f.o.b. Cleveland, Reading $71.50
Bismuth, ton lots ..... $ 2.25
Cadmium, del'd ..... $ 1.55
Calcium, 99.9% small lots ..... $ 4.55
Chromium, 99.8% metallic basis... $ 1.31
Cobalt, 97-99% (per lb)....$2.00 to $2.07
Germanium, per gm, f.o.b. Miami, Okla., refined ..... 39.50 to 50.00
Gold, U. S. Treas., per troy oz..... $35.00
Indium, 99.9%, dollars per troy oz..$ 2.25
Iridium, dollars per troy oz..... $70 to $80
Lithium, 98% ..... $11.00 to $14.00
Magnesium, sticks, 100 to 500 lb.... 59.00
Mercury, dollars per 76-lb flask, f.o.b. New York ..... $228 to $231
Nickel oxide sinter at Buffalo, N. Y., or other U. S. points of entry, contained nickel 69.60
Palladium, dollars per troy oz...$19 to $21
Platinum, dollars per troy oz...$62 to $70
Rhodium ..... $120.00 to $125.00
Silver ingots (¢ per troy oz.) 88.625
Thorium, per kg. $43.00
Vanadium ..... $ 3.45
Zirconium sponge ..... $ 5.00

Remelted Metals

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5 ingot
- No. 115 ..... 27.00
- No. 120 ..... 26.25
- No. 123 ..... 25.75

80-10-10 ingot
- No. 305 ..... 31.25
- No. 315 ..... 29.25

88-10-2 ingot
- No. 210 ..... 38.25
- No. 215 ..... 34.00
- No. 245 ..... 30.75

Yellow ingot
- No. 405 ..... 22.75

Manganese bronze
- No. 421 ..... 24.50

Aluminum Ingot

(Cents per lb del'd 30,000 lb and over)

95-5 aluminum-silicon alloys
- 0.30 copper max. 24.00-24.25
- 0.60 copper max. 23.75-24.00

Piston alloys (No. 122 type)..23.25-24.25
No. 12 alum. (No. 2 grade)...21.00-21.75
108 alloy 21.50-22.25
195 alloy 24.00-25.50
13 alloy (0.60 copper max.)...23.75-24.00
AXS-679 (1 pct zinc) 21.25-22.25

Steel deoxidizing aluminum notch bar granulated or shot

Grade 1—95-97½% 22.00-23.50
Grade 2—92-95% 21.00-21.75
Grade 3—90-92% 20.00-20.75
Grade 4—85-90% 17.00-18.00

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over)

	Heavy	Turnings
Copper	22½	21⅜
Yellow brass	17	15¼
Red brass	19¾	19
Comm. bronze	20⅛	19⅞
Mang. bronze	15⅞	14⅞
Yellow brass rod ends	16¾	

Customs Smelters Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire 22¾
No. 2 copper wire 21½
Light copper 19
*Refinery brass 20¼
Copper bearing material 19⅛
*Dry copper content.

Ingot Makers Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire 22¼
No. 2 copper wire 21½
Light copper 19
No. 1 composition 19¼
No. 1 comp turnings 18¾
Hvy. yellow bras solids 14¼
Brass pipe 15¼
Radiators 15¾

Aluminum

Mixed old cast. ..... 12 —12½
Mixed new clips ..... 14½—15
Mixed turnings, dry ..... 12½—13

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Copper and Brass

No. 1 copper wire ..... 19¾—20¼
No. 2 copper wire ..... 17¾—18¼
Light copper ..... 15¾—16¼
Auto radiators (unsweated). 11½—12
No. 1 composition ..... 15½—16
No. 1 composition turnings.. 14½—15
Cocks and faucets ..... 12½—13
Clean heavy yellow brass ... 10¾—11¼
Brass pipe ..... 13 —13¼
New soft brass clippings .... 13¼—13⅜
No. 1 brass rod turnings .... 11 —11¼

Aluminum

Alum. pistons and struts .... 5 — 5½
Aluminum crankcases ..... 9 — 9½
1100 (2S) aluminum clippings 12½—13
Old sheet and utensils ..... 9 — 9½
Borings and turnings ..... 6 — 6½
Industrial castings ..... 9 — 9½
2024 (24S) clippings ..... 10½—11

Zinc

New zinc clippings ..... 4 — 4½
Old zinc ..... 3 — 3⅛
Zinc routings ..... 1⅝— 2
Old die cast scrap ..... 1½— 1⅝

Nickel and Monel

Pure nickel clippings 42-45
Clean nickel turnings 37-40
Nickel anodes 42-45
Nickel rod ends 42-45
New Monel clippings 28-29
Clean Monel turnings 20-23
Old sheet Monel 25-26
Nickel silver clippings, mixed. 18
Nickel silver turnings, mixed 15

Lead

Soft scrap lead ..... 6¾— 7
Battery plates (dry) ..... 2¼— 2½
Batteries, acid free ..... 1½— 1⅝

Miscellaneous

Block tin ..... 75 —76
No. 1 pewter ..... 59 —60
Auto babbitt ..... 39 —40
Mixer common babbitt ..... 9½—10
Solder joints ..... 13¼—13⅜
Siphon tops 42
Small foundry type ..... 10½—10⅝
Monotype ..... 10¼—10½
Lino. and stereotype ..... 9¼— 9½
Electrotype ..... 8¼— 8½
Hand picked type shells .... 6¼— 6⅜
Linc. and stereo. dross ..... 2¼— 2½
Electro dross ..... 1⅝— 2

(Effective July 28, 1958)

IRON AGE

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BILLETS, BLOOMS, SLABS			PIL-ING	SHAPES STRUCTURALS			STRIP					
		Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton	Sheet Steel	Carbon	Hi Str. Low Alloy	Carbon Wide Flange	Hot-rolled	Cold-rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy	Alloy Hot-rolled	Alloy Cold-rolled
EAST	Bethlehem, Pa.			$114.00 *B3*		5.325 *B3*	7.80 *B3*	5.325 *B3*						
	Buffalo, N. Y.	$77.50 *R3, B3*	$96.00 *R3, B3*	$114.00 *R3, B3*	6.225 *B3*	5.325 *B3*	7.80 *B3*	5.325 *B3*	4.925 *R3, B3*	7.15 *S10*	7.325 *B3*			
	Phila., Pa.									7.70 *P15*				
	Harrison, N. J.													15.05 *C11*
	Conshohocken, Pa.		$101.00 *A2*	$121.00 *A2*					4.975 *A2*		7.325 *A2*			
	New Bedford, Mass.									7.60 *R6*				
	Johnstown, Pa.	$77.50 *B3*	$96.00 *B3*	$114.00 *B3*		5.325 *B3*	7.80 *B3*							
	Boston, Mass.									7.70 *T8*				15.40 *T8*
	New Haven, Conn.									7.60 *D1*				
	Baltimore, Md.									7.15 *T8*				
	Phoenixville, Pa.					5.325 *P2*		5.325 *P2*						
	Sparrows Pt., Md.								4.925 *B3*		7.325 *B3*			
	New Britain, Bridgeport, Wallingford, Conn.			$114.00 *N8*						7.60 *W1,S7*				
	Pawtucket, R. I. Worcester, Mass.									7.70 *N7* 7.70 *A5*				15.40 *N7* 15.20 *T8*
MIDDLE WEST	Alton, Ill.								5.125 *L1*					
	Ashland, Ky.								4.925 *A7*					
	Canton-Massillon, Dover, Ohio		$98.50 *R3*	$114.00 *R3, T5*						7.15 *G4*		10.45 *G4*		14.85 *C11*
	Chicago, Ill. Franklin Park, Ill. Evanston, Ill.	$77.50 *U1, R3*	$96.00 *U1, R3,W8*	$114.00 *U1, R3,W8*	6.225 *U1*	5.275 *U1, W8,P13*	7.75 *U1,Y1 W8*	5.275 *U1*	4.925 *W8, N4,A1*	7.25 *A1,T8 M8*			8.10 *W8, S9,I3*	15.05 *A1, S9,G4*
	Cleveland, Ohio									7.15 *A5,J3*		10.45 *A5*	8.10 *J3*	
	Detroit, Mich.			$114.00 *R5*					4.925 *G3, M2*	7.15 *M2,D1, D2,G3,P11*	7.325 *G3*	10.60 *D2* 10.50 *G3*	8.10 *G3*	15.05 *G3*
	Anderson, Ind.									7.15 *G4*				
	Duluth, Minn.													
	Gary, Ind. Harbor, Indiana	$77.50 *U1*	$96.00 *U1*	$114.00 *U1, Y1*		5.275 *U1, I3*	7.75 *U1, I3*	5.275 *I3*	4.925 *U1, I3,Y1*	7.15 *Y1*	7.325 *U1, I3,Y1*	10.60 *Y1*	8.10 *U1, Y1*	
	Sterling, Ill.	$77.50 *N4*				5.275 *N4*			5.025 *N4*					
	Indianapolis, Ind.									7.30 *J3*				15.20 *J3*
	Newport, Ky.												8.10 *A9*	
	Middletown, Ohio													
	Niles, Warren, Ohio Sharon, Pa.		$96.00 *S1, C10*	$114.00 *C10,S1*					4.925 *R3, S1*	7.15 *R3,T4 S1*	7.325 *R3, S1*	10.50 *S1* 10.45 *R3*	8.10 *S1*	15.05 *S1*
	Owensboro, Ky.	$77.50 *G5*	$96.00 *G5*	$114.00 *G5*										
	Pittsburgh, Pa. Midland, Pa. Butler, Pa. Aliquippa, Pa.	$77.50 *U1, P6*	$96.00 *U1, C11,P6*	$114.00 *U1, C11,B7*	6.225 *U1*	5.275 *U1, J3*	7.75 *U1, J3*	5.275 *U1*	4.925 *P6*	7.15 *J3,B4*			8.10 *S9*	15.05 *S9*
	Weirton, Wheeling, Follansbee, W. Va.				6.225 *W3*	5.275 *W3*		5.275 *W3*	4.925 *W3*	7.15 *W3,F3*	7.325 *W3*	10.50 *W3*		
	Youngstown, Ohio	$77.50 *R3*	$96.00 *Y1, C10*	$114.00 *Y1*			7.75 *Y1*			7.15 *Y1,J3*	7.325 *U1, Y1*	10.65 *Y1*	8.10 *U1, Y1*	15.05 *J3* 10.65 *Y1*
WEST	Fontana, Cal.	$88.00 *K1*	$105.50 *K1*	$135.00 *K1*		6.075 *K1*	8.55 *K1*	6.225 *K1*	5.675 *K1*	9.00 *K1*				
	Geneva Utah		$96.00 *C7*			5.275 *C7*	7.75 *C7*							
	Kansas City, Mo.					5.375 *S2*	7.85 *S2*						8.35 *S2*	
	Los Angeles, Torrance, Cal.		$105.50 *B2*	$134.00 *B2*		5.975 *C7, B2*	8.45 *B2*		5.675 *C7, B2*	9.05 *J3* 9.20 *C1*			9.30 *B2*	17.25 *J3*
	Minnequa, Colo.					5.575 *C6*			5.625 *C6*	9.10 *K1*				
	Portland, Ore.					6.025 *O2*								
	San Francisco, Niles, Pittsburg, Cal.		$105.50 *B2*			5.925 *B2*	8.40 *B2*		5.675 *C7, B2*					
	Seattle, Wash.		$109.50 *B2*			6.025 *B2*	8.50 *B2*		5.925 *B2*					
SOUTH	Atlanta, Ga.					5.475 *A8*			4.925 *A8*					
	Fairfield, Ala. City, Birmingham, Ala.	$77.50 *T2*	$96.00 *T2*			5.275 *T2, R4,C16*	7.75 *T2*		4.925 *T2, R3,C16*		7.325 *T2*			
	Houston, Lone Star, Texas		$101.00 *S2*	$119.00 *S2*		5.375 *S2*	7.85 *S2*						8.35 *S2*	

(Effective July 28, 1958)

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		SHEETS								WIRE ROD	TINPLATE†		BLACK PLATE
		Hot-rolled *18* ga. & hvyr.	Cold-rolled	Galvanized	Enameling	Long Terne	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.		Cokes* *1.25*-lb. base box	Electro* *0.25*-lb. base box	Holloware Enameling *29* ga.
EAST	Bethlehem, Pa.										† Special coated mfg. terne deduct 50¢ from 1.25-lb. coke base box price. Can-making quality blackplate 55 to 128 lb. deduct $2.20 from 1.25 lb. coke base box. * COKES: 1.50-lb. add 25c. ELECTRO: 0.50-lb. add 25¢; 0.75-lb. add 65¢; 1.00-lb. add $1.00. Differential 1.00 lb./0.25 lb. add 65¢.		
	Buffalo, N. Y.	4.925 *B3*	6.05 *B3*				7.275 *B3*	8.975 *B3*		6.15 *W6*			
	Claymont, Del.												
	Coatesville, Pa.												
	Conshohocken, Pa.	4.975 *A2*	6.10 *A2*				7.325 *A2*						
	Harrisburg, Pa.												
	Hartford, Conn.												
	Johnstown, Pa.									6.15 *B3*			
	Fairless, Pa.	4.975 *U1*	6.10 *U1*				7.325 *U1*	9.025 *U1*			$10.15 *U1*	$8.85 *U1*	
	New Haven, Conn.												
	Phoenixville, Pa.												
	Sparrows Pt., Md.	4.925 *B3*	6.05 *B3*	6.60 *B3*			7.275 *B3*	8.975 *B3*	9.725 *B3*	6.25 *B3*	$10.15 *B3*	$8.85 *B3*	
	Worcester, Mass.									6.45 *A5*			
	Trenton, N. J.												
MIDDLE WEST	Alton, Ill.									6.35 *L1*			
	Ashland, Ky	4.925 *A7*		6.60 *A7*	6.625 *A7*								
	Canton-Massillon, Dover, Ohio			6.60 *R3, R1*									
	Chicago, Joliet, Ill.	4.925 *W8, A1*					7.275 *U1*			6.15 *A5, R3, W8, N4, K2*			
	Sterling, Ill.									6.25 *N4, K2*			
	Cleveland, Ohio	4.925 *R3, J3*	6.05 *R3, J3*		6.625 *R3*		7.275 *R3, J3*	8.975 *R3, J3*		6.15 *A5*			
	Detroit, Mich.	4.925 *G3, M2*	6.05 *G3 M2*				7.275 *G3*	8.975 *G3*					
	Newport, Ky	4.925 *A1*	6.05 *A1*										
	Gary, Ind. Harbor, Indiana	4.925 *U1, I3, Y1*	6.05 *U1, I3, Y1*	6.60 *U1, I3*	6.625 *U1, I3, Y1*	7.00 *U1*	7.275 *U1, Y1, I3*	8.975 *U1, Y1*		6.15 *Y1*	$10.05 *U1, Y1*	$8.75 *I3, U1, Y1*	7.50 *U1, Y1*
	Granite City, Ill.	5.025 *G2*	6.15 *G2*	6.70 *G2*	6.725 *G2*							$8.85 *G2*	7.60 *G2*
	Kokomo, Ind.			6.70 *C9*						6.25 *C9*			
	Mansfield, Ohio		6.05 *E2*			7.00 *E2*							
	Middletown, Ohio		6.05 *A7*	6.60 *A7*	6.625 *A7*	7.00 *A7*							
	Niles, Warren, Ohio Sharon, Pa.	4.925 *R3, N3, S1*	6.05 *R3*	6.60 *R3*	6.625 *N3, S1*	7.00 *N3, S1, R3*	7.275 *R3*	8.975 *S1, R3*				$8.75 *R3*	
	Pittsburgh, Pa. Midland, Pa. Butler, Pa. Donora, Pa. Aliquippa, Pa.	4.925 *U1, J3, P6*	6.05 *U1, J3, P6*	6.60 *U1, J3*	6.625 *U1*		7.275 *U1, J3, C11*	8.975 *U1, J3*	9.725 *U1, J3*	6.15 *A5, J3, P6*	$10.05 *U1, J3*	$8.75 *U1, J3*	7.50 *U1, J3*
	Portsmouth, Ohio	4.925 *P7*	6.05 *P7*							6.15 *P7*			
	Weirton, Wheeling, Follansbee, W. Va.	4.925 *W3, W5*	6.05 *W3, F3, W5*	6.60 *W3, W5*		7.00 *W3, W5*	7.275 *W3*	8.975 *W3*			$10.05 *W5, W3*	$8.75 *W5, W3*	7.50 *W5*
	Youngstown, Ohio	4.925 *U1, Y1*	6.05 *Y1*		6.625 *Y1*		7.275 *Y1*	8.975 *Y1*		6.15 *Y1*			
WEST	Fontana Cal.	5.675 *K1*	7.30 *K1*				8.025 *K1*	10.275 *K1*			$10.80 *K1*	$9.50 *K1*	
	Geneva, Utah	5.025 *C7*											
	Kansas City, Mo.									6.40 *S2*			
	Los Angeles, Torrance, Cal.									6.95 *B2*			
	Minnequa, Colo.									6.40 *C6*			
	San Francisco, Niles, Pittsburgh, Cal.	5.625 *C7*	7.00 *C7*	7.35 *C7*						6.95 *C7*	$10.80 *C7*	$9.50 *C7*	
	Seattle, Wash.												
SOUTH	Atlanta, Ga.												
	Fairfield, Ala. Alabama City, Ala.	4.925 *T2, R3*	6.05 *T2, R3*	6.60 *T2, R3*	6.625 *T2*					6.15 *T2, R3*	$10.15 *T2*	$8.85 *T2*	
	Houston, Tex.									6.40 *S2*			

(Effective July 28, 1958)

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BARS						PLATES				WIRE
		Carbon† Steel	Reinforcing	Cold Finished	Alloy Hot-rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Mfrs'. Bright
EAST	Bethlehem, Pa.				6.475 *B3*	8.775 *B3*	7.925 *B3*					
	Buffalo, N. Y.	5.425 *R3,B3*	5.425 *R3,B3*	7.35 *B5*	6.475 *B3,R3*	8.775 *B3,B5*	7.925 *B3*	5.10 *B3*		7.20 *B3*		7.65 *W6*
	Claymont, Del.							5.10 *C4*		7.20 *C4*	7.625 *C4*	
	Coatesville, Pa.							5.10 *L4*		7.20 *L4*	7.625 *L4*	
	Conshohocken, Pa.							5.10 *A2*	6.175 *A2*	7.20 *A2*	7.625 *A2*	
	Harrisburg, Pa.							5.10 *P2*	6.275 *P2*			
	Milton, Pa.	5.575 *M7*	5.575 *M7*									
	Hartford, Conn.			7.80 *R3*		9.075 *R3*	7.925 *B3*					
	Johnstown, Pa.	5.425 *B3*	5.425 *B3*		6.475 *B3*			5.10 *B3*		7.20 *B3*	7.625 *B3*	7.65 *B3*
	Fairless, Pa.	5.575 *U1*	5.575 *U1*		6.625 *U1*							
	Newark, N. J. Camden, N. J.			7.75 *W10* 7.75 *P10*		8.95 *W10* 8.95 *P10*						
	Bridgeport, Conn. Putnam, Conn. Willimantic, Conn.			7.85 *W10* 7.80 *J3*	6.55 *N8*	8.925 *N8*						
	Sparrows Pt., Md.		5.425 *B3*					5.10 *B3*		7.20 *B3*	7.625 *B3*	7.75 *B3*
	Palmer, Worcester, Readville, Mass. Mansfield, Mass.			7.85 *B5,C14*		9.075 *A5,E5*						7.95 *A5, W6*
	Spring City, Pa.			7.75 *K4*		8.95 *K4*						
MIDDLE WEST	Alton, Ill.	5.625 *L1*										7.85 *L1*
	Ashland, Newport, Ky.							5.10 *A7,A1*		7.20 *A1*		
	Canton, Massillon, Ohio	5.90* *R3*		7.30 *R3,R2*	6.475 *R3,T5*	8.775 *R3,R2, T5*						
	Chicago, Joliet, Waukegan, Ill. Harvey, Ill.	5.425 *U1,R3, W8,N4,P13*	5.425 *U1,R3, N4,P13*	7.30 *A5, W10,W8 B5,L2,N9*	6.475 *U1,R3, W8*	8.775 *A5, W10,W8 L2,N8,B5*	7.925 *U1,W8*	5.10 *U1,A1, W8,I3*	6.175 *U1*	7.20 *U1,W8*	7.625 *U1,W8*	7.65 *A5,R3, W8,N4, K2,W7*
	Cleveland, Ohio Elyria, Ohio	5.425 *R3*	5.425 *R3*	7.30 *A5,C13 C18*		8.775 *A5, C13, C18*	7.925 *R3*	5.20 *R3,J3*	6.175 *J3*		7.625 *R3, J3*	7.65 *A5, C13*
	Detroit, Mich.	5.425 *G3*	5.425 *G3*	7.55 *P3* 7.50 *P8,B5*	6.475 *R5 G3*	8.775 *R5* 8.975 *B5,P3, P8*	7.925 *G3*	5.10 *G3*		7.20 *G3*	7.625 *G3*	
	Duluth, Minn.											7.65 *A5*
	Gary, Ind. Harbor, Crawfordsville, Hammond, Ind.	5.425 *U1,I3, Y1*	5.425 *U1,I3, Y1*	7.30 *R3,J3*	6.475 *U1,I3, Y1*	8.775 *R3,M4*	7.925 *U1, Y1*	5.10 *U1,I3, Y1*	6.175 *J3,I3*	7.20 *U1,Y1*	7.625 *U1, Y1,I3*	7.75 *M4*
	Granite City, Ill.							5.20 *G2*				
	Kokomo, Ind.		5.525 *C9*									7.75 *C9*
	Sterling, Ill.	5.525 *N4*	5.525 *N4*					5.10 *N4*				7.75 *K2*
	Niles, Warren, Ohio Sharon, Pa.			7.30 *C10*	6.475 *C10,S1*	8.775 *C10*	7.925 *S1*	5.10 *R3,S1*		7.20 *S1*	7.625 *R3, S1*	
	Madison, Ill.		5.625 *L1*									
	Owensboro, Ky.	5.425 *G5*			6.475 *G5*							
	Pittsburgh, Midland, Donora, Aliquippa, Pa.	5.425 *U1,J3*	5.425 *U1,J3*	7.30 *A5,B4, R3,J3,C11, W10,S9,C8*	6.475 *U1,J3, C11,B7*	8.775 *A5, W10,R3,S9, C11,C8*	7.925 *U1,J3, C11*	5.10 *U1,J3*	6.175 *U1*	7.20 *U1,J3, B7*	7.625 *U1,J3, B7,C11*	7.65 *A5, J3,P6*
	Portsmouth, Ohio											7.65 *P7*
	Weirton, Wheeling, Follansbee, W. Va.							5.10 *W5*				
	Youngstown, Ohio	5.425 *U1,R3, Y1*	5.425 *U1,R3, Y1*	7.30 *A5,Y1, F2*	6.475 *U1,Y1*	8.775 *Y1,F2*	7.925 *U1,Y1*	5.10 *U1,R3, Y1*		7.20 *Y1*	7.625 *U1, R3,Y1*	7.65 *Y1*
WEST	Emeryville, Cal. Fontana, Cal.	6.175 *J5* 6.125 *K1*	6.175 *J5* 6.125 *K1*		7.525 *K1*		8.625 *K1*	5.90 *K1*		8.00 *K1*	8.425 *K1*	
	Geneva, Utah							5.10 *C7*			7.625 *C7*	
	Kansas City, Mo.	5.675 *S2*	5.675 *S2*		6.725 *S2*		8.175 *S2*					7.90 *S2*
	Los Angeles, Torrance, Cal.	6.125 *C7,B2*	6.125 *C7,B2*	8.75 *R3,P14*	7.525 *B2*	10.75 *P14*	8.825 *B2*					8.60 *B2*
	Minnequa, Colo.	5.875 *C6*	5.875 *C6*					5.95 *C6*				7.90 *C6*
	Portland, Ore.	6.175 *O2*	6.175 *O2*									
	San Francisco, Niles, Pittsburg, Cal	6.125 *C7* 6.175 *B2*	6.125 *C7* 6.175 *B2*				8.675 *B2*					8.60 *C7 C6*
	Seattle Wash.	6.175 *B2,N6*	6.175 *B2*				8.675 *B2*	6.00 *B2*		8.10 *B2*	8.325 *B2*	
SOUTH	Atlanta, Ga.	5.625 *A8*	5.425 *A8*									7.65 *A8*
	Fairfield, Ala. City, Birmingham, Ala.	5.425 *T2,R3, C16*	5.425 *T2,R3, C16*	7.90 *C16*			7.925 *T2*	5.10 *T2,R3*			7.625 *T2*	7.65 *T2,R3*
	Houston, Ft. Worth, Lone Star, Tex.	5.675 *S2*	5.675 *S2*		6.725 *S2*		8.175 *S2*	5.20 *S2* 5.20 *L3*		7.30 *S2*	7.725 *S2*	7.90 *S2*

* Special Quality (Effective July 28, 1958) † Merchant Quality—Special Quality 35¢ higher.

STEEL PRICES

Key to Steel Producers

With Principal Offices

A1 Acme Steel Co., Chicago
A2 Alan Wood Steel Co., Conshohocken, Pa.
A3 Allegheny Ludlum Steel Corp., Pittsburgh
A4 American Cladmetals Co., Carnegie, Pa.
A5 American Steel & Wire Div., Cleveland
A6 Angel Nail & Chaplet Co., Cleveland
A7 Armco Steel Corp., Middletown, Ohio
A8 Atlantic Steel Co., Atlanta, Ga.
A9 Acme-Newport Steel Co., Newport, Ky.

B1 Babcock & Wilcox Tube Div., Beaver Falls, Pa.
B2 Bethlehem Pacific Coast Steel Corp., San Francisco
B3 Bethlehem Steel Co., Bethlehem, Pa.
B4 Blair Strip Steel Co., New Castle, Pa.
B5 Bliss & Laughlin, Inc., Harvey, Ill.
B6 Brook Plant, Wickwire-Spencer Steel Div., Birdsboro, Pa.
B7 A. M. Byers, Pittsburgh
B8 Braeburn Alloy Steel Corp., Braeburn, Pa.

C1 Calstrip Steel Corp., Los Angeles
C2 Carpenter Steel Co., Reading, Pa.
C3 Central Iron & Steel Co., Harrisburg, Pa.
C4 Claymont Products Dept., Claymont, Del.
C5 Colorado Fuel & Iron Corp., Denver
C7 Columbia Geneva Steel Div., San Francisco
C8 Columbia Steel & Shafting Co., Pittsburgh
C9 Continental Steel Corp., Kokomo, Ind.
C10 Copperweld Steel Co., Pittsburgh, Pa.
C11 Crucible Steel Co. of America, Pittsburgh
C13 Cuyahoga Steel & Wire Co., Cleveland
C14 Compressed Steel Shafting Co., Readville, Mass.
C15 G. O. Carlson, Inc., Thorndale, Pa.
C16 Connors Steel Div., Birmingham
C17 Chester Blast Furnace, Inc., Chester, Pa.
C18 Cold Drawn Steel Plant, Western Automatic Machine Screw Co., Elyria, O.

D1 Detroit Steel Corp., Detroit
D2 Dearborn Div., Sharon Steel Corp.
D3 Driver Harris Co., Harrison, N. J.
D4 Dickson Weatherproof Nail Co., Evanston, Ill.

E1 Eastern Stainless Steel Corp., Baltimore
E2 Empire Steel Co., Mansfield, O.

F1 Firth Sterling, Inc., McKeesport, Pa.
F2 Fitzsimons Steel Corp., Youngstown
F3 Follansbee Steel Corp., Follansbee, W. Va.

G2 Granite City Steel Co., Granite City, Ill.
G3 Great Lakes Steel Corp., Detroit
G4 Greer Steel Co., Dover, O.
G5 Green River Steel Corp., Owensboro, Ky.

H1 Hanna Furnace Corp., Detroit

I2 Ingersoll Steel Div., Chicago
I3 Inland Steel Co., Chicago
I4 Interlake Iron Corp., Cleveland

J1 Jackson Iron & Steel Co., Jackson, O.
J2 Jessop Steel Corp., Washington, Pa.
J3 Jones & Laughlin Steel Corp., Pittsburgh
J4 Joslyn Mfg. & Supply Co., Chicago
J5 Judson Steel Corp., Emeryville, Calif.

K1 Kaiser Steel Corp., Fontana, Cal.
K2 Keystone Steel & Wire Co., Peoria
K3 Koppers Co., Granite City, Ill.
K4 Keystone Drawn Steel Co., Spring City, Pa.

L1 Laclede Steel Co., St. Louis
L2 La Salle Steel Co., Chicago
L3 Lone Star Steel Co., Dallas
L4 Lukens Steel Co., Coatesville, Pa.

M1 Mahoning Valley Steel Co., Niles, O.
M2 McLouth Steel Corp., Detroit
M3 Mercer Tube & Mfg. Co., Sharon, Pa.
M4 Mid States Steel & Wire Co., Crawfordsville, Ind.
M6 Mystic Iron Works, Everett, Mass.
M7 Milton Steel Products Div., Milton, Pa.
M8 Mill Strip Products Co., Evanston, Ill.

N1 National Supply Co., Pittsburgh
N2 National Tube Div., Pittsburgh
N3 Niles Rolling Mill Div., Niles, O.
N4 Northwestern Steel & Wire Co., Sterling, Ill.
N6 Northwest Steel Rolling Mills, Seattle
N7 Newman Crosby Steel Co., Pawtucket, R. I.
N8 Carpenter Steel of New England, Inc., Bridgeport, Conn.
N9 Nelson Steel & Wire Co.

O1 Oliver Iron & Steel Co., Pittsburgh
O2 Oregon Steel Mills, Portland

P1 Page Steel & Wire Div., Monessen, Pa.
P2 Phoenix Iron & Steel Co., Phoenixville, Pa.
P3 Pilgrim Drawn Steel Div., Plymouth, Mich.
P4 Pittsburgh Coke & Chemical Co., Pittsburgh
P5 Pittsburgh Screw & Bolt Co., Pittsburgh
P6 Pittsburgh Steel Co., Pittsburgh
P7 Portsmouth Div., Detroit Steel Corp., Detroit
P8 Plymouth Steel Co., Detroit
P9 Pacific States Steel Co., Niles, Cal.
P10 Precision Drawn Steel Co., Camden, N. J.
P11 Production Steel Strip Corp., Detroit
P13 Phoenix Mfg. Co., Joliet, Ill.
P14 Pacific Tube Co.
P15 Philadelphia Steel and Wire Corp.

R1 Reeves Steel & Mfg. Co., Dover, O.
R2 Reliance Div., Eaton Mfg. Co., Massillon, O.
R3 Republic Steel Corp., Cleveland
R4 Roebling Sons Co., John A., Trenton, N. J.
R5 J. & L. Steel Co., Stainless Div.
R6 Rodney Metals, Inc., New Bedford, Mass.
R7 Rome Strip Steel Co., Rome, N. Y.

S1 Sharon Steel Corp., Sharon, Pa.
S2 Sheffield Steel Div., Kansas City
S3 Shenango Furnace Co., Pittsburgh
S4 Simonds Saw and Steel Co., Fitchburg, Mass.
S5 Sweet's Steel Co., Williamsport, Pa.
S6 Standard Forging Corp., Chicago
S7 Stanley Works, New Britain, Conn.
S8 Superior Drawn Steel Co., Monaca, Pa.
S9 Superior Steel Div. of Copperweld Steel Co., Carnegie, Pa.
S10 Seneca Steel Service, Buffalo
S11 Southern Electric Steel Co., Birmingham

T1 Tonawanda Iron Div., N. Tonawanda, N. Y.
T2 Tennessee Coal & Iron Div., Fairfield
T3 Tennessee Products & Chem. Corp., Nashville
T4 Thomas Strip Div., Warren, O.
T5 Timken Steel & Tube Div., Canton, O.
T7 Texas Steel Co., Fort Worth
T8 Thompson Wire Co., Boston

U1 United States Steel Corp., Pittsburgh
U2 Universal-Cyclops Steel Corp., Bridgeville, Pa.
U3 Ulbrich Stainless Steels, Wallingford, Conn.
U4 U. S. Pipe & Foundry Co., Birmingham

W1 Wallingford Steel Co., Wallingford, Conn.
W2 Washington Steel Corp., Washington, Pa.
W3 Weirton Steel Co., Weirton, W. Va.
W4 Wheatland Tube Co., Wheatland, Pa.
W5 Wheeling Steel Corp., Wheeling, W. Va.
W6 Wickwire Spencer Steel Div., Buffalo
W7 Wilson Steel & Wire Co., Chicago
W8 Wisconsin Steel Div., S. Chicago, Ill.
W9 Woodward Iron Co., Woodward, Ala.
W10 Wyckoff Steel Co., Pittsburgh
W12 Wallace Barnes Steel Div., Bristol, Conn.

Y1 Youngstown Sheet & Tube Co., Youngstown, O.

PIPE AND TUBING — **Base discounts (pct) f.o.b. mills. Base price about $200 per net ton.**

	BUTTWELD														SEAMLESS							
	⅛ In.		¼ In.		1 In.		1¼ In.		1½ In.		2 In.		2½-3 In.		2 In.		2½ In.		3 In.		3½-4 In.	
STANDARD T. & C.	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**
Sparrows Pt. *B3*	3.25	+12.0	6.25	+8.0	9.75	+3.50	12.25	+2.75	12.75	+1.75	13.25	+1.25	14.75	+1.50								
Youngstown *R3*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50								
Fontana *K1*	+8.25	+23.5	+5.25	+19.5	+1.75	+15.00	0.75	+14.25	1.25	+13.25	1.75	+12.75	3.25	+13.00								
Pittsburgh *J3*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0	1.25	+15.50
Alton, Ill. *L1*	3.25	+12.0	6.25	+8.0	9.75	+3.50	12.25	+2.75	12.75	+1.75	13.25	+1.25	14.75	+1.50								
Sharon *M3*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50								
Fairless *N2*	3.25	+12.0	6.25	+8.0	9.75	+3.50	12.25	+2.75	12.75	+1.75	13.25	+1.25	14.75	+1.50								
Pittsburgh *N1*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0	1.25	+15.50
Wheeling *W5*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50								
Wheatland *W4*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50								
Youngstown *Y1*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0	1.25	+15.50
Indiana Harbor *Y1*	4.25	+11.0	7.25	+7.0	10.75	+2.50	13.25	+1.75	13.25	+0.75	14.25	+0.25	15.75	+1.00								
Lorain *N2*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0	1.25	+15.50
EXTRA STRONG PLAIN ENDS																						
Sparrows Pt. *B3*	7.75	+6.0	11.75	+2.0	14.75	2.50	15.25	1.25	15.75	2.25	16.25	2.75	16.75	1.50								
Youngstown *R3*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50								
Fairless *N2*	7.75	+6.0	11.75	+2.0	14.75	2.50	15.25	1.25	15.75	2.25	16.25	2.75	16.75	1.50								
Fontana *K1*	+3.75		0.25		3.25		3.75		4.25		4.75		5.25									
Pittsburgh *J3*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.25	+16.0	2.25	+13.50	7.25	+8.50
Alton, Ill. *L1*	7.75	+6.0	11.75	+2.0	14.75	2.50	15.25	1.25	15.75	2.25	16.25	2.75	16.75	1.50								
Sharon *M3*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50								
Pittsburgh *N1*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.25	+16.0	2.25	+13.50	7.25	+8.50
Wheeling *W5*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50								
Wheatland *W4*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50								
Youngstown *Y1*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.25	+16.0	2.25	+13.50	7.25	+8.50
Indiana Harbor *Y1*	8.75	+5.0	12.75	+1.0	15.75	3.50	16.25	2.25	16.75	3.25	17.25	3.75	17.75	2.50								
Lorain *N2*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.25	+16.0	2.25	+13.50	7.25	+8.50

Threads only, buttweld and seamless 2½ pt. higher discount. Plain ends, buttweld and seamless, 3-in. and under, 5½ pt. higher discount.
Galvanized discounts based on zinc price range of over 9¢ to 11¢ per lb. East St. Louis. For each 2¢ change in zinc, discounts vary as follows: ⅛, ¼ and 1-in., 2 pt.; 1¼, 1½ and 2-in., 1½ pt.; 2½ and 3-in., 1 pt., e.g., zinc price range of over 13¢ to 15¢ would lower discounts on 2½ and 3-in. pipe by 2 points; zinc price in range over 7¢ to 9¢ would increase discounts. East St. Louis zinc price now 10¢ per lb.

(Effective July 28, 1958)

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots for minus 100 mesh

Swedish sponge iron, del. East of Miss. River, ocean bags, 23,000 lb. and over ..... 10.5¢
F.O.B. Riverton or Camden, New Jersey, west of Miss. River .... 9.5¢
Domestic sponge iron, 98+% Fe, 23,000 lb. and over del'd East of Miss. River ..... 10.5¢
F.O.B. Riverton, New Jersey, West of Miss. River ..... 9.5¢
Canadian sponge iron, del'd in East, carloads ..... 10.5¢
Atomized iron powder, 98% + Fe, 40 mesh,, F.O.B. Easton, Pa., in 100 lb bags ..... 7.7¢
Atomized iron powder, 98% + Fe, F.O.B. Easton, Pa., in 100 lb. bags. Freight allowed east of Miss. River..... 10.5¢
Atomized iron powder, 98% + Fe. Cutting and scarfing grade, F.O.B. Easton, Pa. ..... 8.5¢
Electrolytic iron, annealed, imported 99.5+% Fe .... 27.5¢
domestic 99.5+% Fe .... 36.5¢
Electrolytic iron, unannealed minus 325 mesh, 99+% Fe 57.0¢
Electrolytic iron melting stock, 99.84% pure ..... 27.0¢
Carbonyl iron size 3 to 20 micron, 98%, 99.8+% Fe.. 88.0¢ to $2.85
Aluminum, freight allowed.. 38.00¢
Brass, 10 ton lots ..... 31.1¢ to 47.1¢
Copper, electrolytic ..... 41.50¢
Copper, reduced ..... 40.3¢ to 48.8¢
Cadmium, 100-199 lb. 95¢ plus metal value
Chromium, electrolytic, 99.85% min. Fe. 03 max. Del'd ... $5.00
Lead, f.o.b. Hammond, Ind. . 19¢
Manganese f.o.b. Extron, Pa. 46.0¢
Molybdenum, 99% ..... $3.60 to $3.95
Nickel, chemically precipitated $1.05
Nickel, unannealed $1.00
Nickel, annealed $1.06
Nickel, spherical, unannealed #80 ..... $1.13
Silicon ..... 43.50¢
Solder powder ..... 13¢ plus met. value
Stainless steel, 302 ..... $1.02
Stainless steel, 316 ..... $1.30
Tin ..... 14.00¢ plus metal value
Tungsten, 99% (65 mesh) $3.15 (nominal)
Zinc, 5000 lb & over..... 17.5¢ to 30.7¢

BOLTS, NUTS, RIVETS, SCREWS

(Base discount, f.o.b. mill)

Machine and Carriage Bolts	Full Container Price	Pct. Discounts 30 Containers	30,000 Lb.	40,000 Lb.
½" and smaller x 6" and shorter	49	54	56	57
9/16" thru 1" x longer than 6"	35	40	43	45
Rolled thread carriage bolts ½" & smaller x 6" and shorter	49	54	56	57
Lag, all diam. x 6" & shorter	49	54	56	57
Lag, all diam. longer than 6 in.	39	44½	47	48½
Plow bolts, ½" and smaller x 6" and shorter	49	54	56	57

(Add 25 pct for broken case quantities)

Nuts, Hex, HP reg. & hvy.	Full case or Keg price
¾ in. or smaller	60½
⅞ in. to 1 in. inclusive	55½
1⅛ in. to 1½ in. inclusive	58½
1⅝ in. and larger	53½
C. P. Hex, reg. & hvy.	
¾ in. and smaller	60½
⅞ in. to 1½ in. inclusive	55½
1⅝ in. and larger	53½
Hot Galv. Hex Nuts (All Types)	
¾ in. and smaller	46½
Semi-finished Hex Nuts	
⅝ in. or smaller	60½
¾ in. to 1¼ in. inclusive	55½
1⅝ in. and larger	53½
(Add 25 pct for broken case or keg quantities)	
Finished	
⅞ in. and smaller	63

Rivets

	Base per 100 lb
½ in. and larger	$12.25
	Pct. Off List
7/16 in. and smaller	19

Cap Screws *Discount (Packages)*

Full Finished H. C. Heat Treat

New std. hex head, packaged		
⅝" diam. and smaller x 6" and shorter	40	26
¾", ⅞", and 1" diam. x 6" and shorter	22	3
⅝" diam. and smaller x longer than 6"	8	+13
¾", ⅞", and 1" diam. x longer than 6" .....+	6	+32

	C-1018 Steel Full-Finished Cartons	Bulk
¼" through ⅝" dia. x 6" and shorter	58	49
¾" through 1" dia. x 6" and shorter	45	33

Minimum quantity—¼" through ⅝" diam., 15,000 pieces; 1/16" through ⅞" diam., 5,000 pieces; ¾" through 1" diam., 2,000 pieces.

Machine Screws & Stove Bolts

Plain Finish	Discount Mach. Screws	Stove Bolts
Cartons	60	60
Bulk *Quantity*		
To ¼" diam. incl. } 25,000-and over	60	..
5/16 to ½" diam. incl. } 15,000-200,000	60	..

Machine Screws & Stove Bolt Nuts

	Discount Hex	Square
In Cartons	16	19
Quantity		
In Bulk		
⅝" diam. & smaller } 25,000 and over	14	16

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, frt allowed in quantity)

Copper
Rolled elliptical, 18 in. or longer, 5000 lb lots 40.00
Electrodeposited 32.75
Brass, 80-20, ball anodes, 2000 lb or more 45.50
Zinc, ball anodes, 2000 lb lots 16.50
(for elliptical add 1¢ per lb)
Nickel, 99 pct plus, rolled carbon, 5000 lb 1.0225
(Rolled depolarized add 3¢ per lb)
Cadmium 1.55
Tin, ball anodes $1.13 per lb (approx.).

Chemicals

(Cents per lb, f.o.b. shipping point)

Copper cyanide, 100 lb drum 68.70
Copper sulphate, 100 lb bags, per cwt. 22.15
Nickel salts, single, 100 lb bags.... 36.00
Nickel chloride, freight allowed, 300 lb 42.00
Sodium cyanide, domestic, f.o.b. N. Y., 200 lb drums 24.05
(Philadelphia price 24.50)
Zinc cyanide, 100 lb 60.75
Potassium cyanide, 100 lb drum N. Y. 48.00
Chromic acid, flake type, 10,000 lb or more 30.44

CAST IRON WATER PIPE INDEX

Birmingham 125.8
New York 138.7
Chicago 140.9
San Francisco-L. A. 148.6

Dec. 1955, value, Class B or heavier 5 in. or larger, bell and spigot pipe. Explanation: p. 57, Sept. 1, 1955, issue. Source: U. S. Pipe and Foundry Co.

WAREHOUSES

Metropolitan Price, dollars per 100 lb.

Cities	City Delivery‡ Charge	Sheets: Hot-Rolled (18 ga. & hvr.)	Sheets: Cold-Rolled (15 gage)	Sheets: Galvanized (10 gage)††	Strip: Hot-Rolled	Plates	Shapes: Standard Structure	Bars: Hot-Rolled (merchant)	Bars: Cold-Finished	Alloy Bars: Hot-Rolled 4615 As rolled	Alloy Bars: Hot-Rolled 4140 Annealed	Alloy Bars: Cold-Drawn 4615 As rolled	Alloy Bars: Cold-Drawn 4140 Annealed
Atlanta		8.59	9.87	10.13	8.64	8.97	9.05	9.01	10.68	.....	.....	.....	.....
Baltimore	$.10	8.10	9.00	9.78	8.80	8.76	8.60	8.75	12.43	16.28	15.28	19.83	19.08
Birmingham		8.18	9.45	10.46	8.23	8.56	8.64	8.60	10.56*	.....	.....	.....	.....
Boston	.10	9.48	10.54	11.55	9.52	9.82	9.73	9.83	13.28*	16.38	15.38	19.93	19.18
Buffalo	.15	8.40	9.15	11.22	8.65	9.05	9.05	8.95	11.15*	16.34	15.15	19.01	18.95
Chicago	.15	8.35	9.60	10.25	8.38	8.71	8.79	8.75	8.95	15.80	14.80	19.35	18.60
Cincinnati	.15	8.49	9.65	10.25	8.69	9.08	9.33	9.07	9.46	15.61	15.11	18.96	18.91
Cleveland	.15	8.33	9.60	10 35	8.48	8.94	9.16	8.84	11.95*	15.89	14.89	19.29	18.69
Denver	.20	9.60	11.84	12.94	9.63	9.96	10.04	10.00	11.19	.....	.....	.....	20.84
Detroit	.15	8.58	9.85	10.60	8.73	9.06	9.33	9.05	9.30	15.46	15.06	18.81	18.86
Houston		7.10	8.40	.....	7.25	7.70	7.25	7.20	11.10	16.20	15.25	19.65	18.95
Kansas City	.20	9.02	10.27	10 82	9.05	9.38	9.46	9.42	9.87	20.02	15.47	20.02	19.27
Los Angeles		8.25	10.30	12.10	8.90	8.85	8.70	8.75	12.10*	17.05	16.10	21.05	20.35
Memphis	.15	8.55	9.80	.....	8.60	8.93	9.01	8.97	12 11*	.....	.....	.....	.....
Milwaukee	.15	8.48	9.73	10.38	8.51	8.84	9.00	8.88	9.18	15.93	14.93	19.48	18.73
New York	.10	8.97	10.23	10.66	9.41	9.53	9.45	9.67	13.31*	16.19	15.19	19.74	18.99
Norfolk	.20	8.20	.....	.....	8.90	8.65	9.20	8.90	10.70	.....	.....	.....	.....
Philadelphia	.10	8.10	9.00	10.02	8.79	8.87	8.60	8.75	11.61*	16.11	15.11	19.66	18.91
Pittsburgh	.15	8.33	9.60	10.60	8.48	8.71	8.79	8.75	10.95*	15.80	14.80	19.35	18.60
Portland		10.00[1]	11.75[2]	13.30[3]	11.95[4]	11.50[5]	11.10[6]	9.85[7]	16.00	18.50	17.45	20.75	20.25
San Francisco	.10	9.45	10.85	11.10	9.55	9.70	9.60	9.80	13.10	17.05	16.10	21.05	20.35
Seattle		9.95	11.15	12.20	10.00	9.70	9.80	10.10	14.05	17.15	16.35	20.65	20.15
Spokane	.15	10.10	11.30	12.15	10.15	9.85	9.95	10.25	14.20	.....	17.35	21.55	21.05
St. Louis	.15	8.69	9.94	10.61	8.74	9.08	9.25	9.12	9.56	16.16	15.16	19.71	18.96
St. Paul	.15	8.94	10.19	10.86	8.99	9.45	9.53	9.37	9.81	.....	15.41	.....	19.21

Base Quantities (Standard unless otherwise keyed): Cold finished bars: 2000 lb or over. Alloy bars: 1000 to 1999 lb. All others: 2000 to 4999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may be combined with each other for quantity. **All sizes except 18 and 16 gage.

†† 10¢ zinc. ‡ Deduct for country delivery. * C1018—1 in. rounds. [1] 10 ga. x 36" x 120"; [2] 20 ga. x 36" x 120"; [3] 26 ga. x 30" x 96"; [4] 1⅛" x 1" in lots of 1000 to 9999; [5] sheared plate ¼" x 84" in lots of 1000 to 9999; [6] 3" x 5.70" in lots of 1000 to 9999; [7] M-1020—1-in. rounds in lots of 1000 to 9999.

(Effective July 28, 1958)

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	per lb	SAE
18	4	1	—	—	$1.795	T-1
18	4	1	—	5	2.50	T-4
18	4	2	—	—	1.96	T-2
1.5	4	1.5	8	—	1.155	M-1
6	4	3	6	—	1.545	M-3
6	4	2	5	—	1.30	M-2

High-carbon chromium.. .925 D-3, D-5
Oil hardened manganese .475 O-2
Special carbon ..... .36 W-1
Extra carbon ..... .36 W-1
Regular carbon ..... .305 W-1

Warehouse prices on and east of Mississippi are 4¢ per lb higher. West of Mississippi, 6¢ higher.

CLAD STEEL

Base prices, cents per lb f.o.b.

	Plate (*A3, J2, L4, C4*)			Sheet (*I2*)
Cladding	10 pct	15 pct	20 pct	20 pct
Stainless Type 302	.....	.....	.....	37.50
304	37.95	42.25	46.70	40.00
316	44.40	49.50	54.50	58.75
321	40.05	44.60	49.30	47.25
347	42.40	47.55	52.80	57.00
405	29.85	33.35	36.85	.....
410	29.55	33.10	36.70	.....
430	29.80	33.55	37.25	.....

CR Strip (89) Copper, 10 pct, 2 sides, 38.75; 1 side, 33.10.

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Screw Spikes	Tie Plates	Track Bolts Untreated
Bessemer *U1*	5.525	6.50	6.975	.....	.....	.....	.....
Cleveland *R3*	.....	.....	.....	.....	.....	.....	14.75
So. Chicago *R3*	.....	.....	.....	9.75	.....	.....	.....
Ensley *T2*	5.525	6.50	.....	.....	.....	.....	.....
Fairfield *T2*	.....	6.50	.....	9.75	.....	6.60	.....
Gary *U1*	5.525	.....	.....	.....	.....	6.60	.....
Huntington *C16*	.....	6.50	.....	.....	.....	.....	.....
Ind. Harbor *I3*	5.525	.....	6.975	9.75	.....	6.60	.....
Ind. Harbor *Y1*	.....	.....	.....	9.75	.....	.....	.....
Johnstown *B3*	.....	6.50	.....	.....	.....	.....	.....
Joliet *U1*	.....	.....	6.975	.....	.....	.....	.....
Kansas City *S2*	.....	.....	.....	9.75	.....	.....	14.75
Lackawanna *B3*	5.525	6.50	6.975	.....	.....	6.60	.....
Lebanon *B3*	.....	.....	6.975	.....	14.50	.....	14.75
Minnequa *C6*	5.525	7.00	6.975	9.75	.....	6.60	14.75
Pittsburgh *P5*	.....	.....	.....	.....	.....	.....	14.75
Pittsburgh *J3*	.....	.....	.....	9.75	.....	.....	.....
Seattle *B2*	.....	.....	.....	10.25	.....	6.75	15.75
Steelton *B3*	5.525	.....	6.975	.....	.....	6.60	.....
Struthers *Y1*	.....	.....	.....	9.75	.....	.....	.....
Torrance *C7*	.....	.....	.....	.....	.....	6.75	.....
Williamsport *S5*	.....	6.50	.....	.....	.....	.....	.....
Youngstown *R3*	.....	.....	.....	9.75	.....	.....	.....

COKE

	Net-Ton
Furnace, beehive (f.o.b.) Connellsville, Pa.	$15.00 to $15.75
Foundry, beehive (f.o.b.)	$17.50 to $19.00
Foundry oven coke	
Buffalo, del'd	$31.75
Detroit, f.o.b.	30.50
New England, del'd	31.55
Kearney, N. J., f.o.b.	29.75
Philadelphia, f.o.b.	29.50
Swedeland, Pa., f.o.b.	29.50
Painesville, Ohio, f.o.b.	30.50
Erie, Pa., f.o.b.	30.50
Cleveland, del'd	32.65
Cincinnati, del'd	31.84
St. Paul, f.o.b.	29.75
St. Louis, f.o.b.	31.50
Birmingham, f.o.b.	28.85
Milwaukee, f.o.b.	30.50
Neville, Is., Pa.	29.25

LAKE SUPERIOR ORES

51.50% Fe natural content, delivered lower Lake ports. Prices for 1958 season. Freight changes for seller's account.

	Gross Ton
Openhearth lump	$12.70
Old range, bessemer	11.85
Old range, nonbessemer	11.70
Mesabi, bessemer	11.60
Mesabi, nonbessemer	11.45
High phosphorus	11.45

ELECTRICAL SHEETS

22-Gage F.o.b. Mill Cents Per Lb	Hot-Rolled (Cut Lengths)*	Cold-Rolled (Coiled or Cut Length) Semi-Processed	Fully Processed
Field		9.625	
Armature	11.10	10.85	11.35
Elect.	11.80	11.55	12.05
Special Motor		12.10	
Motor	12.90	12.65	13.15
Dynamo	13.95	13.70	14.20
Trans. 72	15.00	14.75	15.25
Trans. 65	15.55		
		Grain Oriented	
Trans. 58	16.05	Trans. 66	20.20
Trans. 52	17.10	Trans. 80	19.20
		Trans. 73	19.70

Producing points: Beech Bottom (*W5*); Brackenridge (*A3*); Granite City (*G2*) $2 a ton higher; Indiana Harbor (*I3*); Mansfield (*E2*); Newport, Ky. (*A9*); Niles, O. (*N3*); Vandergrift (*U1*); Warren, O. (*R3*); Zanesville, Butler (*A7*).

ELECTRODES

Cents per lb. f.o.b. plant, threaded, with nipples, unbored.

GRAPHITE Diam. (In.)	Length (In.)	Price	CARBON* Diam. (In.)	Length (In.)	Price
24	84	26.00	40	100,110	10.70
20	72	25.25	35	110	10.70
18	72	25.75	30	110	10.85
14	72	25.75	24	72 to 84	11.25
12	72	26.25	20	90	11.00
10	60	28.00	17	72	11.40
10	48	28.50	14	72	11.85
7	60	28.25	12	60	12.95
6	60	31.50	10	60	13.00
4	40	35.00	8	60	13.30
3	40	37.00			
2½	30	39.25			
2	24	60.75			

* Prices shown cover carbon nipples.

REFRACTORIES

Fire Clay Brick

Carloads per 1000

First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5.00)	$135.00
No. 1 Ohio	120.00
Sec. Quality, Pa., Md., Ky., Mo., Ill.	120.00
No. 2 Ohio	103.00
Ground fire clay, net ton, bulk (except Salina, Pa., add $2.00)	21.50

Silica Brick

Mt. Union, Pa., Ensley, Ala.	$150.00
Childs, Hays, Pa.	155.00
Chicago District	160.00
Western Utah	175.00
California	180.00
Super Duty Hays, Pa., Athens, Tex., Windham, Warren, O., Morrisville	157.00-160.00
Silica cement, net ton, bulk, Latrobe	28.50
Silica cement, net ton, bulk, Chicago	25.50
Silica cement, net ton, bulk, Ensley, Ala.	26.50
Silica cement, net ton, bulk, Mt. Union	24.50
Silica cement, net ton, bulk, Utah and Calif.	37.00

Chrome Brick

Per net ton

Standard chemically bonded, Balt.	$105.00
Standard chemically bonded, Curtiner, Calif.	115.00
Burned, Balt.	99.00

Magnesite Brick

Standard Baltimore	$131.00
Chemically bonded, Baltimore	116.00

Grain Magnesite

St. ⅝ to ½-in. grains

Domestic, f.o.b. Baltimore in bulk.	$73.00
Domestic, f.o.b. Chewalah, Wash., Luning, Nev. in bulk	46.00
in sacks	52.00-54.00

Dead Burned Dolomite

Per net ton

F.o.b. bulk, producing points in: Pa., W. Va., Ohio	$16.75
Midwest	17.00
Missouri Valley	15.00

(Effective July 28, 1958)

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard Q Coated Nails Col	Woven Wire Fence Col	"T" Fence Posts Col	Single Loop Bale Ties Col	Galv. Barbed and Twisted Barbless Wire Col	Merch. Wire Annld ¢/lb.	Merch. Wire Galv. ¢/lb.
Alabama City *R3*	173	187	...	212	193	8.65	9.20
Aliquippa *J3***	173	190	...		190	8.65	9.325
Atlanta *A8***	175	192	...	214	198	8.75	9.425
Bartonville *K2***	175	192	178	214	198	8.75	9.425**
Buffalo *W6*	.....	.....	.....	.....	.....	8.65	8.95**
Chicago *N4*****	173	190	172	212	196	8.65	9.325
Cleveland *A6*	.....	.....	.....	.....	.....	.....	.....
Cleveland *A5*	.....	.....	.....	.....	.....	8.65	.....
Crawf'dsv. *M4***	175	192	...	214	198	8.75	9.425
Donora, Pa. *A5*	173	187	...	212	193	8.65	9.20
Duluth *A5*	173	187	...	212	193	8.65	9.20
Fairfield, Ala. *T2*	173	187	...	212	193	8.65	9.20
Galveston *D4*	9.10‡	.....	.....	.....	.....	.....	.....
Houston *S2*	178	192	...	217	198	8.90	9.45
Jacksonville *M4*	184-1	197	...	219	203	9.00	9.675
Johnstown *B3***	173	190	172	...	196**	8.65	9.325**
Joliet, Ill. *A5*	173	187	...	212	193	8.65	9.20
Kokomo *C9**	175	189	...	214	195*	8.75	9.30*
L. Angeles *B2*****	.....	.....	.....	.....	.....	9.60	10.275
Kansas City *S2**.	178	192	...	217	198*	8.90	9.45*
Minnequa *C6*†...	178	192	177	217	198†	8.90	9.45†
Moneasen *P6*	.....	.....	.....	.....	193	8.65	9.20
Palmer, Mass. *W6*	.....	.....	.....	.....	.....	8.95	9.50*
Pittsburg, Cal. *C7*	192	210	...	.....	213	9.60	10.15
Rankin, Pa. *A5*..	173	187	...	.....	193	8.65	9.20
So. Chicago *R3*..	173	187	...	.....	193	8.65	9.20
S. San Fran. *C6*†	.....	.....	...	236	.....	9.60	10.15†
SparrowsPt. *B3***	175	.....	...	214	198	8.75	9.425
Sterling, Ill. *N4*****	175	192	172	214	198	8.75	9.425
Struthers, O. *Y1**	.....	.....	.....	.....	.....	8.65	9.30
Worcester *A5*	179	.....	.....	.....	.....	8.95	9.50
Williamsport *S5*	.....	.....	.....	.....	.....	.....	.....

* Zinc less than .10¢.
** 11-12¢ zinc.
*** .10¢ zinc.
† Plus zinc extras.
‡ Wholesalers only.

C-R SPRING STEEL

Cents Per Lb F.o.b. Mill	CARBON CONTENT 0.26-0.40	0.41-0.60	0.61-0.80	0.81-1.05	1.06-1.35
Baltimore, Md. *T8*	9.50	10.70	12.90	15.90	18.85
Bristol, Conn. *W12*	.....	10.70	12.90	16.10	19.30
Boston *T8*	9.50	10.70	12.90	15.90	18.85
Buffalo, N. Y. *R7*	8.95	10.40	12.60	15.60	18.55
Carnegie, Pa. *S9*	8.95	10.40	12.60	15.60	18.55
Cleveland *A5*	8.95	10.40	12.60	15.60	18.55
Dearborn *S1*	9.05	10.50	12.70	.....	.....
Detroit *D1*	9.05	10.50	12.70	15.70	.....
Detroit *D2*	9.05	10.50	12.70	.....	.....
Dover, O. *G4*	8.95	10.40	12.60	15.60	18.55
Evanston, Ill. *M8*	9.05	10.40	12.60	.....	.....
Franklin Park, Ill. *T8*	9.05	10.40	12.60	15.60	18.55
Harrison, N. J. *C11*	.....	.....	12.90	16.10	19.30
Indianapolis *J3*	9.10	10.55	12.60	15.60	18.55
Los Angeles *C1*	11.15	12.60	14.80	17.80	.....
New Britain, Conn. *S7*	9.40	10.70	12.90	15.90	18.85
New Castle, Pa. *B4*	8.95	10.40	12.60	15.60	.....
New Haven, Conn. *D1*	9.40	10.70	12.90	15.90	.....
Pawtucket, R. I. *N7*	9.50	10.70	12.90	15.90	18.85
Riverdale, Ill. *A1*	8.95	10.40	12.60	15.60	18.55
Sharon, Pa. *S1*	8.95	10.40	12.60	15.60	18.55
Trenton, *R4*	.....	10.70	12.90	16.10	19.30
Wallingford *W1*	9.40	10.70	12.90	15.90	18.55
Warren, Ohio *T4*	8.95	10.40	12.60	15.60	18.75
Worcester, Mass. *A5*	9.50	10.70	12.90	15.90	18.85
Youngstown *J3*	8.95	10.40	12.60	15.60	18.55

BOILER TUBES

$ per 100 ft. carload lots, cut 10 to 24 ft. F.o.b. Mill	Size OD-In.	Size B.W. Ga.	Seamless H.R.	Seamless C.D.	Elec. Weld H.R.
Babcock & Wilcox	2	13	36.34	42.56	35.22
	2½	12	48.94	57.31	47.43
	3	12	56.51	66.18	54.77
	3½	11	65.97	77.25	63.93
	4	10	87.61	102.59	85.53
National Tube	2	13	36.34	42.56	35.22
	2½	12	48.94	57.31	47.43
	3	12	56.51	66.18	54.77
	3½	11	65.97	77.25	63.93
	4	10	87.61	102.59	85.53
Pittsburgh Steel	2	13	36.34	42.56	.....
	2½	12	48.94	57.31	.....
	3	12	56.51	66.18	.....
	3½	11	65.97	77.25	.....
	4	10	87.61	102.59	.....

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

Producing Point	Basic	Fdry.	Mall.	Bess.	Low Phos.
Birdsboro, Pa. *B6*	68.00	68.50	69.00	69.50	.....
Birmingham *R3*	62.00	62.50*	.....	.....	.....
Birmingham *W9*	62.00	62.50*	66.50	.....	.....
Birmingham *U4*	62.00	62.50*	66.50	.....	.....
Buffalo *R3*	66.00	66.50	67.00	67.50	.....
Buffalo *H1*	66.00	66.50	67.00	67.50	.....
Buffalo *W6*	66.00	66.50	67.00	67.50	.....
Chester *P2*	66.50	67.00	67.50	.....	.....
Chicago *I4*	66.00	66.50	66.50	67 00	.....
Cleveland *A5*	66.00	66.50	66.50	67.00	71.00†
Cleveland *R3*	66.00	66.50	66.50	67.00	.....
Duluth *I4*	66.00	66.50	66.50	67.00	71.00†
Erie *I4*	66.00	66.50	66.50	67.00	71.00†
Everett *M6*	67.50	68.00	68.50	.....	.....
Fontana *K1*	75.00	75.50	.....	.....	.....
Geneva, Utah *C7*	66.00	66.50	.....	.....	.....
Granite City *G2*	67.90	68.40	68.90	.....	.....
Hubbard *Y1*	.....	.....	66.50	.....	.....
Ironton, Utah *C7*	66.00	66.50	.....	.....	.....
Midland *C11*	66.00	.....	.....	.....	.....
Minnequa *C6*	66 00	68.50	69.00	.....	.....
Monessen *P6*	66.00	.....	.....	.....	.....
Neville Is. *P4*	66.00	66.50	66.50	67.00	71.00†
N. Tonawanda *T1*	.....	66 50	67.00	67.50	.....
Sharpsville *S3*	66.00	.....	66.50	67.00	.....
So. Chicago *R3*	66.00	66.50	66.50	67.00	.....
So. Chicago *W8*	66.00	.....	66.50	67.00	.....
Swedeland *A2*	68.00	68.50	69.00	69.50	.....
Toledo *I4*	66.00	66.50	66.50	67.00	.....
Troy, N. Y. *R3*	68.00	68.50	69.00	69.50	74.00
Youngstown *Y1*	.....	.....	66.50	67.00	.....

DIFFERENTIALS: Add, 75¢ per ton for each 0.25 pct silicon or portion thereof over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct) 50¢ per ton for each 0.25 pct manganese or portion thereof over 1 pct, $2 per ton for 0.50 to 0.75 pct nickel, $1 for each additional 0.25 pct nickel. Add $1.00 for 0.31-0.69 pct phos.

Silvery Iron: Buffalo (6 pct), *H1*, $79.25; Jackson *J1*, *I4* (Globe Div.), $78.00; Niagara Falls (15.01-15.50), $101.00; Keokuk (14.01-14.50), $103.50; (15.51-16.00), $106.50. Add $1.00 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 18 pct. Add $1.25 for each 0.50 pct manganese over 1.00 pct. Bessemer silvery pig iron (under .10 pct phos.): $64.00 Add $1.00 premium for all grades silvery to 18 pct.

† Intermediate low phos.

STAINLESS STEEL

Base price cents per lb f.o.b. mill

Product	201	202	301	302	303	304	316	321	347	403	410	416	430
Ingots, reroll.	22.00	23.75	23.25	25.25	—	27.00	39.75	32.25	37.00	—	16.75	—	17.00
Slabs, billets	27.00	27.00	28.00	31.50	32.00	33.25	49.50	40.00	46.50	—	21.50	—	21.75
Billets, forging	—	36.50	37.25	38.00	41.00	40.50	62.25	47.00	55.75	32.00	28.25	28.75	28.75
Bars, struct.	42.00	43.00	44.25	45.00	48.00	47.75	73.00	55.50	64.75	37.75	33.75	34.25	34.25
Plates	44.25	45.00	46.25	47.25	50.00	50.75	76.75	58.75	69.75	40.25	35.00	36.75	36.00
Sheets	48.50	49.25	51.25	52.00	—	55.00	80.75	65.50	79.25	48.25	40.25	—	40.75
Strip, hot-rolled	36.00	39.00	37.25	40.50	—	44.25	69.25	53.50	63.50	—	31.00	—	32.00
Strip, cold-rolled	45.00	49.25	47.50	52.00	—	55.00	80.75	65.50	79.25	48.25	40.25	—	40.75
Wire CF; Rod HR	40.00	40.75	42.00	42.75	45.50	45.25	69.25	52.50-52.75	61.50	35.75	32.00	32.50	32.50

STAINLESS STEEL PRODUCING POINTS:

Sheets: Midland, Pa., *C11;* Brackenridge, Pa., *A3;* Butler, Pa., *A7;* Vandergrift, Pa., *U1;* Washington, Pa., *W2, J2.* Baltimore, *E1;* Middletown, O., *A7;* Massillon, O., *R3;* Gary, *U1;* Bridgeville, Pa., *U2;* New Castle, Ind., *I2;* Detroit, *M2.*

Strip: Midland, Pa., *C11;* Waukegan, Cleveland, *A5;* Carnegie, Pa., *S9;* McKeesport, Pa., *F1;* Reading, Pa., *C2;* Washington, Pa., *W2;* W. Leechburg, Pa., *A3,* Bridgeville, Pa., *U2;* Detroit, *M2;* Canton, Massillon, O., *R3;* Harrison, N. J., *D3;* Youngstown, *J3;* Sharon, Pa., *S1;* Butler, Pa., *A7;* Wallingford, Conn., *U3* (plus further conversion extras); *W1* (.25¢ per lb higher); New Bedford, Mass., *R6;* Gary, *U1* (.25¢ per lb higher).

Bar: Baltimore, *A7;* S. Duquesne, Pa., *U1,* Munhall, Pa., *U1;* Reading, Pa., *C2;* Titusville, Pa., *U2;* Washington, Pa., *J2;* McKeesport, Pa., *U1, F1* Bridgeville, Pa., *U2;* Dunkirk, N. Y., *A3;* Massillon, O., *R5,* S. Chicago, *U1;* Syracuse, N. Y., *C11;* Watervliet, N. Y., *A3;* Waukegan, *A5;* Canton, O., *T5, R3;* Ft. Wayne, *I4;* Detroit, *R5;* Gary, *U1;* Owenboro, Ky., *G3;* Bridgeport, Conn., *N8.*

Wire: Waukegan, *A5;* Massillon, O., *R3;* McKeesport, Pa., *F1;* Ft. Wayne, *J4;* Harrison, N. J., *D3;* Baltimore, *A7;* Dunkirk, *A3;* Monessen, *P1;* Syracuse, *C11;* Bridgeville, *U2.*

Structurals: Baltimore, *A7;* Massillon, O., *R3;* Chicago, Ill., *J4;* Watervliet, N. Y., *A3;* Syracuse, *C11;* S. Chicago, *U1.*

Plates: Brackenridge, Pa., *A3;* Chicago, *U1;* Munhall, Pa., *U1;* Midland, Pa., *C11;* New Castle, Ind., *I2;* Middletown; *A7;* Washington, Pa., *J2;* Cleveland, Massillon, *R3;* Coatesville, Pa., *C15;* Vandergrift, Pa., *U1;* Gary, *U1.*

Forging billets: Midland, Pa., *C11;* Baltimore, *A7;* Washington, Pa., *J2;* McKeesport, *F1;* Massillon, Canton, O., *R5;* Watervliet, *A3;* Pittsburgh, Chicago, *U1* Syracuse, *C11;* Detroit, *R5;* Munhall, Pa., S. Chicago, *U1;* Owensboro, Ky., *G3;* Bridgeport, Conn., *N8.*

(Effective July 28, 1958)

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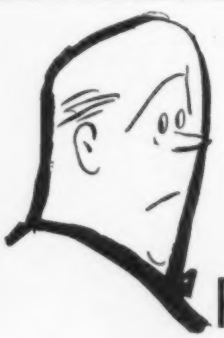

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FERROALLOY PRICES

Ferrochrome

Cents per lb contained Cr, lump, bulk, carloads, del'd. 67-71% Cr, .30-1.00% max. Si.

0.02% C....	41.00	0.50% C....	38.00
0.05% C....	39.00	1.00% C....	37.75
0.10% C....	38.50	1.50% C....	37.50
0.20% C....	38.25	2.00% C....	37.25

4.00-4.50% C, 60-70% Cr, 1-2% Si.. 28.75
3.50-5.00% C, 57-64% Cr, 2.00-4.50% Si 27.50
0.025% C (Simplex) 36.75
0.10% C, 52-57% Cr, 2.00% max Si. 37.50
7-8½% max C, 50-55% Cr, 3-6% max Si 22.50
7-8½% max C, 50-55% Cr, 3% max Si 25.00

High Nitrogen Ferrochrome

Low-carbon type 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome max. 0.10% C price schedule. Add 5¢ for each additional 0.25% of N.

Chromium Metal

Per lb chromium, contained, packed, delivered, ton lots, 97% min. Cr, 1% max. Fe.

0.10% max. C $1.31
0.50% max. C 1.31
9 to 11% C, 88-91% Cr, 0.75% Fe... 1.40

Electrolytic Chromium Metal

Per lb of metal 2" x D plate (⅛" thick) delivered packed, 99.80% min. Cr. (Metallic Base) Fe 0.20 max.

Carloads $1.29
Ton lots 1.31
Less ton lots 1.33

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-45%, C 0.05% max.) Carloads, delivered, lump, 3-in. x down, packed.

Price is sum of contained Cr and contained Si.

	Cr	Si
Carloads, bulk	27.50	14.20
Ton lots	32.75	15.65
Less ton lots	34.35	17.30

Calcium-Silicon

Per lb of alloy, lump, delivered, packed. 30-33% Cr, 60-65% Si, 3.00 max. Fe.

Carloads 25.65
Ton lots 27.95
Less ton lots 29.45

Calcium-Manganese—Silicon

Cents per lb of alloy, lump, delivered, packed.

16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads 24.25
Ton lots 26.15
Less ton lots 27.15

SMZ

Cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe ½ in. x 12 mesh.

Ton lots 21.15
Less ton lots 22.40

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V-5; 38-42% Cr, 17-19% Si, 8-11% Mn, packed.

Carload lots 18.45
Ton lots 19.95
Less ton lots 21.20

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed 19.20
Ton lots to carload packed 21.15
Less ton lots 22.40

Ferromanganese

Maximum base price, f.o.b., lump size, base content 74 to 76 pct Mn.

Producing Point	Cents per-lb
Marietta, Ashtabula, O.; Alloy, W. Va.; Sheffield, Ala.; Portland, Ore.	12.25
Johnstown, Pa.	12.25
Neville Island, Pa.	12.25
Sheridan, Pa.	12.25
Philo, Ohio	12.25
S. Duquesne	12.25

Add or substract 0.1¢ for each 1 pct Mn above or below base content.

Briquets, delivered, 66 pct Mn:

Carloads, bulk 14.80
Ton lots packed in bags 17.20

Spiegeleisen

Per gross ton, lump, f.o.b. Palmerton, Pa., and Neville Island, Pa.

Manganese	Silicon	
16 to 19%	3% max.	$100.50
19 to 21%	3% max.	102.50
21 to 23%	3% max.	105.00

Manganese Metal

2 in. x down, cents per pound of metal delivered.

95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.

Carload, packed 45.75
Ton lots 47.25

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, f.o.b. Marietta, O., delivered, cents per pound.

Carloads 34.00
Ton lots 36.00
250 to 1999 lb 38.00
Premium for Hydrogen - removed metal 0.75

Medium Carbon Ferromanganese

Mn 80 to 85%, C 1.25 to 1.50, Si 1.50% max., carloads, lump, bulk, delivered, per lb of contained Mn 25.50

Low-Carb Ferromanganese

Cents per pound Mn contained, lump size, del'd Mn 85-90%.

	Carloads (Bulk)	Ton	Less
0.07% max. C, 0.06% P, 90% Mn	37.15	39.95	41.15
0.07% max. C	35.10	37.90	39.10
0.10% max. C	34.35	37.15	38.35
0.15% max. C	33.60	36.40	37.60
0.30% max. C	32.10	34.90	36.10
0.50% max. C	31.60	34.40	35.60
0.75% max. C, 80.85% Mn, 5.0-7.0% Si ...	28.60	31.40	32.60

Silicomanganese

Lump size, cents per pound of metal, 65-68% Mn, 18-20% Si, 1.5% max. C for 2% max. C, deduct 0.2¢ f.o.b. shipping point.

Carloads bulk 12.80
Ton lots, packed 14.45
Briquet contract basis carloads, bulk, delivered, per lb of briquet 15.10
Packed, pallets, 3000 lb up to carloads 16.50

Silvery Iron (electric furnace)

Si 15.50 to 16.00 pct., f.o.b. Keokuk, Iowa, or Wenatchee, Wash., $106.50 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $93.00.

Silicon Metal

Cents per pound contained Si, lump size, delivered, packed.

	Ton lots, packed	Carloads, packed
96.75% Si 1.25% Fe..	24.20	22.90
98% Si, 0.75% Fe	24.95	23.65

Silicon Briquets

Cents per pound of briquets, bulk, delivered, 40% Si, 2 lb Si, briquets.

Carloads, bulk 7.70
Ton lots, packed 10.50

Electric Ferrosilicon

Cents per lb contained Si, lump, bulk, carloads, f.o.b. shipping point.

50% Si....	14.20	75% Si....	16.40
65% Si....	15.25	85% Si....	18.10
	90% Si....	19.50	

Ferrovanadium

50-55% V delivered, per pound, contained V, in any quantity.

Openhearth 3.20
Crucible 3.30
High speed steel (Primos) 3.40

Calcium Metal

Eastern zone, cents per pound of metal, delivered.

	Cast	Turnings	Distilled
Ton lots	$2.05	$2.95	$3.75
100 to 1999 lb..	2.40	3.30	4.55

(Effective July 28, 1958)

Alsifer, 20% Al, 40% Si, 40% Fe, f.o.b. Suspension Bridge, N. Y., per lb.

Carloads, bulk ..... 10.35¢
Ton lots ..... 11.70¢

Calcium molybdate, 43.6-46.6% f.o.b. Langeloth, Pa., per pound contained Mo $1.28

Ferrocolumbium, 50-50%, 2 in. x D, delivered per pound contained Cb.

Ton lots $4.00
Less ton lots..... 4.05

Ferro-tantalum-columbium, 20% Ta, 40% Cb, 0.30% C, del'd ton lots, 2-in. x D per lb con't Sb plus Ta $3.80

Ferromolybdenum, 55-75%, 200-lb containers, f.o.b. Langeloth, Pa., per pound contained Mo.. $1.68

Ferrophosphorus, electric, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., $5.00 unitage, per gross ton $120.00
10 tons to less carload $131.00

Ferrotitanium, 40% regular grade 0.10% C max., f.o.b. Niagara Falls, N. Y., and Cambridge, O., freight allowed, ton lots, per lb contained Ti $1.35

Ferrotitanium, 25% low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Cambridge, O., freight allowed, ton lots, per lb contained Ti $1.50
Less ton lots $1.54

Ferrotitanium, 15 to 18% high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton $240.00

Ferrotungsten, ¼ x down packed, per pounds contained W, ton lots delivered ..... $2.15 (nominal)

Molybdic oxide, briquets per lb contained Mo, f.o.b. Langeloth, Pa. $1.41
bags, f.o.b. Washington, Pa., Langeloth, Pa. $1.38

Simanal, 20% Si, 20% Mn, 20% Al, f.o.b. Philo, Ohio, freight allowed per lb.

Carload, bulk lump ..... 18.50¢
Ton lots, packed lump ..... 20.50¢
Less ton lots ..... 21.00¢

Vanadium oxide, 86-89% V_2O_5 per pound contained V_2O_5 ..... $1.38

Zirconium, per lb of alloy 35-40% f.o.b. freight allowed, carloads, packed ..... 27.25¢
12-15%, del'd lump, bulk-carloads ..... 9.25¢

Boron Agents

Borosil, per lb of alloy del. f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B
2000 lb carload $5.50

Bortram, f.o.b. Niagara Falls.

Ton lots per pound ..... 45¢
Less ton lots, per pound ..... 50¢

Corbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4-5-7.5%, f.o.b., Suspension Bridge, N. Y., freight allowed.

Ton lots per pound ..... 14.00¢

Ferroboron, 17.50 min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D, ton lots... $1.20
F.o.b. Wash., Pa., Niagara Falls, N. Y., delivered 100 lb up

10 to 14% B	.85
14 to 19%	1.20
19% min. B	1.50

Grainal, f.o.b. Cambridge, O., freight, allowed, 100 lb and over

No. 1	$1.05
No. 79	50¢

Manganese-Boron, 75.00% Mn, 15.20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd.

Ton lots (packed)	$1.46
Less ton lots (packed)	1.57

Nickel-Boron, 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, del'd less ton lots 2.15

ELECTRICAL POWER EQUIPMENT IN STOCK

DC MOTORS

Qu.	H.P.	Make	Type	Volts	RPM
1	3900	New Elliott	Enc. F.V.	475	320
1	3000	New Whse.	Enc. F.V.	525	600
1	2250	New Elliott	Enc. F.V.	600	200/300
1	2200	G.E.	MCF	600	400/500
1	1750	New Elliott	Enc. F.V.	250	175/350
8	1500	New Whse.	Enc. F.V.	525	600
1	1375	G.E.	MCF	415	1300
1	1300	G.E.	MCF-12	300	200/400
1	1200	G.E.	MCF	600	450/600
1	1000	Whse.		500	800/2000
1	940	Whse.	QM	250	140/170
2	940	S.S.	Enc. F.V.	600	800/1000
2	800	G.E.	MCF	250	400/750
2	750	G.E.	MCF	600	450/900
1	750	G.E.	MCF	600	300/720
1	750	G.E.	MCF	600	120/360
2	645	S.S.	Enc. F.V.	300	1000
4	600	Whse.		250	275/550
1	500	G.E. B.B.	TLF-2656H	250	2000/3600
1	500	G.E.	MPC-10	250	188/400
3	450	Whse.		550	415
2	400	G.E.	CY-275	300	1000/1500
1	300	Cr.Wh.	H-102 B.B.	230	1200
2	300	G.E.	MPC	250	400
2	275	G.E. B.B.	TLC-108	250	2000/4000
1	225	G.E. B.B.		250	1150/3600
1	200	Rel. B.B.	T-663-D.P.	240	1150
1	200	Rel. B.B.	T-664-D.P.	240	850
1	200	Whse.	CB-207.4	250	850/1200
1	150	Cr.Wh.	CMC-65H	230	1150
1	150	G.E. B.B.	TLC-74	250	1150/3500
1	150	Rel. B.B.	T-663-D.P.	240	850/1700
1	150	G.E. B.B.	CD	600	250/750
1	120	G.E. B.B.	TLC-50	250	1950/5000
1	125/150	New Whse.	CB-210.3	230	300/1200
1	120	Rel. B.B.	1050T	230	575/900
2	125	Whse.	SK-190	230	450/1200
1	125	Whse.	SK-185	230	350/1050
1	100	G.E.	CDP-115	230	1750
2	100	Whse.	SK-181	230	450/1000
1	75	Rel. B.B.	T-663 D.P.	240	500/1000
1	75	G.E. B.B.	CD-1235-D.P.	600	850
1	60/75	Rel. B.B.	T-664-D.P.	240	300/1200
1	40	Rel. B.B.	TY 663	240	300/1200
1	25/33	Rel. B.B.	TY 563	240	300/1200
2	60	Rel. B.B.	T-406-D.P.	240	1750/2400
1	50	Rel. B.B.	T-405-D.P.	240	1750
1	40	Rel. B.B.	T-405-D.P.	240	1750
6	40	Rel. B.B.	385F. TEFC	230	500/1500
1	30/40	Rel. B.B.	T-564-D.P.	240	300/900

MERCURY ARC RECTIFIERS

3—150 KW, G.E., Sealed Tube Ignitron Unit Substation load centers 275 V. D.C., 2300 V. A.C. Pyranol filled transformers complete.
2—150 KW, G.E., Ignitron, 245 V. D.C.—230 V. A.C., air cooled transformers with controls.

MG SETS—3 Ph. 60 Cy.

Qu.	K.W.	Make	RPM	DC Volts	AC Volts
1	2000	G.E.	514	600	2300/4600
2	1750/2100	G.E.	514	250/300	2300/4600
1	1750	G.E.	514	600	2300/4600
1	1500	G.E.	720	600	6600/13200
1	1500	G.E.	600	600	11000/6600
1	1500	S.S. 3 unit	720	600	11000/6600
1	1500	Cr.Wh. 4 unit	720	100	2300
2	1000	G.E.	720	600	6600/13200
2	750	G.E.	720	250/300	6600/13200
1	500	G.E.	900	125/250	440
1	350	G.E.	900	125	440/2300/4160
1	300	G.E.	1200	250	2300/4000
1	300	G.E.	1200	250	440/2300
1	240	Whse.	900	125	220/440
1	200	G.E.	1200	250	440/550
1	200	Whse.	1200	550	2200
1	200	El.Mhy.	1200	250	2300/4600
1	150	G.E.	1200	275	2300
1	150	Whse.	1200	275	2300
1	150	G.E.	1200	125	440
1	140	Cr.Wh.	690	125/250	2300
1	125	G.E.	1800	250	220/440
1	100	G.E.	1170	250	220/440
1	100	Cr.Wh.	1800	240	440
2	100	Cr.Wh.	1160	525	220/550
1	100	G.E.	1200	250	2400/4100
2	75	Whse.	1200	125	440

TRANSFORMERS

Qu.	KVA	Make	Type	Ph.	Voltages
3	3333	Whse.	OISC	1	13800 x 2300
1	1500	G.E. auto	HT	3	4000/4200/4400
3	1000	G.E.	OA/FA	1	13800 x 230/460
2	750	G.E.	Pyranol	1	4800x85/55-255/165
3	500	Kuhl	OISC	1	13200 x 6600
3	333	G.E.	BS-W4R	1	2400/4160 240 x 480
3	333	G.E.	OISC	3	2400/4160Y x 600
3	150	G.E.	OISC	1	3300x2300/4000Y
3	100	Whse.	SK	1	4600x460/230/115

CRANE & MILL MOTORS
230 V., D.C.

Qu.	H.P.	Make	RPM	Type
14	12/15	Whse.	700/600	MCA-30, Series
1	20	Whse.	975	K-5, Series
2	23	G.E.	650	MD8-408
2	25	G.E.	725	CO-1808, Series
1	35	Whse.	480	CK-9 Comp. S.B.
1	35	Whse.	480	CK-9 Sh. R.B.
1	45	Whse.	600	CK-9 Comp. S.B.
3	50	G.E.	650	COM-1830 Comp.
3	50	Whse.	525	CK-9 Shunt R.B.
2	50	Whse.	600	CK-9 Comp. R.B.
1	50	G.E.	525	COM-1830AE B.B.
1	50	Cr.Wh.	550	SW-50 Comp.
1	100	G.E.	475	CO-1832 S.B.
6	100/140	Whse.	500/415	MC-90 R.B.

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THE CLEARING HOUSE

Buyer Interest Grows At Pittsburgh

Used machinery sellers there are getting plenty of customer inquiries.

But, while the market has improved a trifle, it's still at depressed levels.

■ A call on a Pittsburgh dealer this week found him busy in the shop with a customer. Trying again later, he was busy with another customer.

A month ago the same dealer was standing by, waiting for the phone to ring. His current activity can't be taken as more than a straw in the wind. There is a slightly better feeling in the local market. There is a little more activity. But there has been no broad upturn.

Better But Bad—One supplier of electrical equipment says July was the worst month since 1954. Another dealer says business is better but still terrible. A third dealer reports an improvement but does not know if this was just another of the spot flurries that have come and gone in the past three months.

Lots of Activity—Over-all, you have to say business is still depressed but shows signs of turning upward. A supplier of steel mill equipment spent the morning recently with a consultant for a foreign producer. The same day he was contacted by a South American mill that wanted to send a man in for information on a job. A third foreign prospect was due in that afternoon.

"We have more inquiries than we can handle," says the supplier. He emphasized, however, that there had been no sharp pickup. Steel mill equipment has been moving at a reduced but steady rate right along. Domestic and export markets are about evenly balanced.

No Dumping Noted—When business first fell off, foreign buyers came in looking for bargains. They were disappointed. There has been no dumping of steel mill equipment—only a normal flow.

For one supplier of general machinery, July was a fairly good month when compared to recent periods. Most of the orders came from small shops and called for toolroom equipment. Large production models are attracting little interest.

Prices are reasonably firm in the Pittsburgh area, although dealers hear there has been sharp cutting in the Midwest.

There is plenty equipment available. Dealers are well stocked. Plants are using their newest machines to handle reduced workloads, and weeding out the older models. Dealers are being offered some attractive buys but can't afford to tie up too much capital in stock.

Handling Items Up—The last 10 days have seen a slight improvement in the demand for materials handling equipment. Both orders and inquiries have picked up. Most of the orders are for smaller types of equipment and there is no clear upward trend yet.

Electrical equipment slumped badly in July after a good first quarter and a June flurry. Steel mills apparently took advantage of first half slackness to make repairs. The present low operating rate is generating only a few spot jobs.

CONSIDER GOOD USED EQUIPMENT FIRST

BENDING ROLLS
9' x ¼" Bertsch Initial Type
13' x 5/16" Bertsch Initial Type
13' x 3/16" Bertsch Initial Type—NEW
32' x ⅜" Baldwin Pyramid Type

BRAKES—PRESS TYPE
10" x ¼" & 12" x ¼" Hydraulic—NEW

CRANES—OVERHEAD ELECTRIC TRAVELING

3 ton J&H	56' Span 220/3/60
5 ton Shepard Niles	70' Span 230 Volt D.C.
7½ ton Shaw	40' Span 230 Volt D.C.
8 ton P&H	55' Span 220/3/60
10 ton P&H	39' span 220 Volt D.C.
10 ton Milwaukee	57' Span 220 Volt D.C.
10 ton Shaw	48' Span 230 Volt D.C.
10/3 ton P&H	47' Span 220/3/60 A.C.
10 ton Shaw	120' Span 230 Volt D.C.
15 ton Northern	54' Span 230 Volt D.C.
15 ton Shepard Niles	54' Span 230 Volt D.C.
20/5 ton Whiting	47' Span 220/3/60 A.C.
120 ton Shepard Niles	77' Span 220/3/60

DRAW BENCHES
3000 lb. Draw Bench, 20 ft. Pull
7000 lb. Draw Bench, 51 ft. Pull—New 1956
10,000 lb. Draw Bench, 50 ft. Draw

FORGING MACHINES
1" to 5" Aams, Ajax, National

GRINDER
No. 3 Cincinnati Centerless Grinder—NEW 1956

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#44 Waterbury Farrel DS OD, Capacity 5/16"
#250C Manville SS SD, Capacity ¼"

LEVELERS—ROLLER
37" Torrington, 19 Rolls 1 31/32" dia.
44" Newboldt, 9 Rolls 4 dia.
60" Aetna Standard, 17 Rolls 4⅝" dia.
72" McKay, 15 Rolls 4¼" Dia.

MILLING MACHINE—PLANER TYPE
42" x 42" x 14' Ingersoll 2 Rail & 2 Side Heads

PRESSES—HYDRAULIC
600 ton HPM Fastraverse, Bed 36" x 36"
600 ton Elmes 36" Stroke, 48 x 45" Bet. Cols.
1000 ton HPM Fastraverse, Bed 48" x 74", 36" Stroke
1500 ton Mesta Steam Hydr. Forging Press

PRESSES—STRAIGHT SIDE
100 ton Toledo #57½, 10" Stroke, Bed 20" x 29"
215 ton Clearing, 24" Stroke, Bed 36" x 42"

PRESS—TOGGLE DRAWING
#168¾ Toledo, 18" Stroke of Blankholder, 26" Stroke of Plunger, Bed 48" x 51"

PUNCH & SHEAR COMBINATIONS
Buffalo #1½ Ironworker
Cleveland Style C; Arch Jaw, Capy. ⅝" x ⅝"
Cleveland Style EF, Arch Jaw, Capy. 1⅛" x 1"

ROLL—CORRUGATING
#5 Stamco, Capy. 16 Ga. Material 12" long 36" wide

ROLLING MILLS
6" x 1" Three Stand Wire, Rolling Mill Complete with Pay Off & Recoiler
6" x 5" Torrington Flat Wire Mill Line
8" x 10" Single Stand Two High
10" x 14" Single Stand Two High
10" x 16" Single Stand Two High
12" x 12" Single Stand Two High
12" x 16" Single Stand Two High
16" x 24" Single Stand Two High
20" x 36" Single Ite Stand Two High

ROLL—FORMING
18 Stand Custom Built, 2½ Shaft, will take 36" wide

ROLLE—PLATE STRAIGHTENERS
108" Bertsch, Seven Rolls 9" Dia.
72" Niles 7 Rolls 9" Dia. Motor Drives

SHEAR—ALLIGATOR
No. 4 Mesta RH LK, Capacity 2" x 12"

SHEAR—ANGLE
6 x 6 x ⅝" Hilles & Jones

SHEAR LINE
36" x .020 Ga. Halliden Shear Line

SHEARS—SQUARING
6' x 14 Ga. Edwards, Motor Drive—LATE
10' x ¼" Cincinnati
10' x ⅜" Niagara
14 x 3/16" Cincinnati #1814

SLITTERS
24" Blake & Johnson, 3½" Dia. Arbor
36" Yoder, 4½ Dia. Arbor
92" Mesta Slitting & Trimmer, Capacity 3/16"

STRAIGHTENERS
¼" Lewis 4C with 22 Ft. Cut off
Shuster Shape Straightener, Capy. 1" Hex. Sq. Rd.
Torrington 12-Roll Capy. 1⅜" Sq. Etc.
No. 0 Medart 2 Roll, Capacity ¼"-1½" Bars
No. 3 Medart 3 Roll, Capacity to 4½" Tubing

SWAGING MACHINES
#6½A Penn Capacity 3⅜" Tube 1¼" Solid
10" Die Length Hydraulic Feed, LATE

THREAD ROLLER
No. 160 Waterbury Farrel Thread Roller

UNCOILER
48" Parson Hydraulic Uncoiler

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Type B Morgan 4-Block, Capy. #5 Rod down
Syncro BBS-11 Fine Wire Drawing Machine with Spooler, Starting size .028" dia. finish .003" .003"
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ALLIANCE STEEL MILL TROLLEY
STEEL MILL CRANES
PLATE LEVELLERS

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No. 4MS Leland & Gifford H.S., 4 spindle A.C., m.d.
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2*	2000	Whse.	720	600	4160/2400
1	2000	G.E.	450	250	4160/2400
1	1875	Whse.	514	250	13800/6900/4160
2	1250	Whse.	720	600	4160/2400
1	1250	G.E.	450	132/265	4160/2400
2	500	Whse.	1200	125/250	4000/2300
3	300	Whse.	1200	125/250	4000/2300
1*	300	Al.Ch.	1200	250/300	2300
1	250	G.E.	1200	250	440
3	200	Whse.	1200	125/250	4000/2300
1	150	G.E.	1200	250	4600/2300
1	150	C.W.	720	250	440
2	450	El. Mchy.	1200	125	2300

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(1)—1250 K.V.A., Whse Hi-Cycle Frequency Set, 800 V., 960 cycle, with 1875 H.P., 2300 V., syn motor complete with all switch gear.

Qu.	K.W.	Make		Volts
1**	2250	Whse.	Mill	92/132
1**	1250	Al.Ch.	Mill	300/600
1**	1500	Whse.	F. Vent.	600
1**	800	Whse.	Mill	300
1	700	Whse.	Mill-R.B.	110/220
1	600	Whse.	Mill-QM	425/850
2**	600	Al.Ch.	MPC	600
1	400	G.E.	CD-175-A	850/1025
1	300	Whse.	MPC	600
2	275	Whse.	8K-184	575/850
1	180	G.E.	CD-175	600/800
1	175	G.E.	F. Vent.	143/168
1	125	G.E.	461-T	1150/1500
1	125	Whse.	25-S	525/1050
1	100	G.E.	651-T	575/1150
1	100	Rel.	F. Vent.	300/700
1	80	El.Dy.	8K-131	500/1500
1	80	Rel.	Encl. F.C.	600/800
1	50/60	Whse.	T.E.F.C.	500/1500
1	50	G.E.	Mill	300/600
2	40/30	Whse.	Ped. Brg.	450

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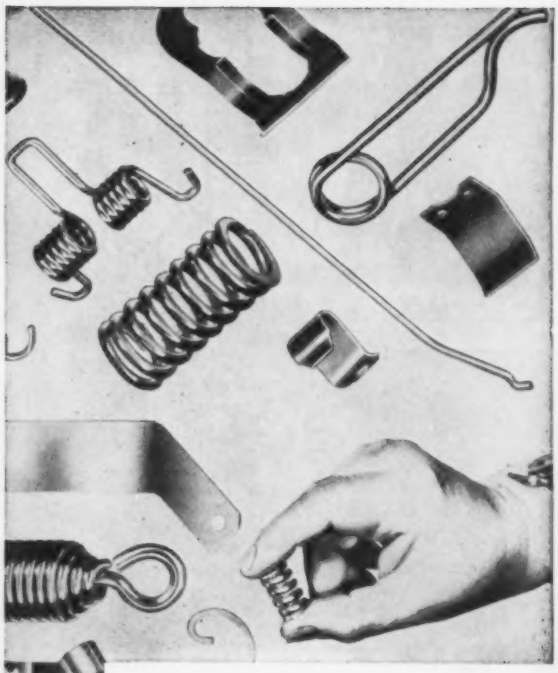

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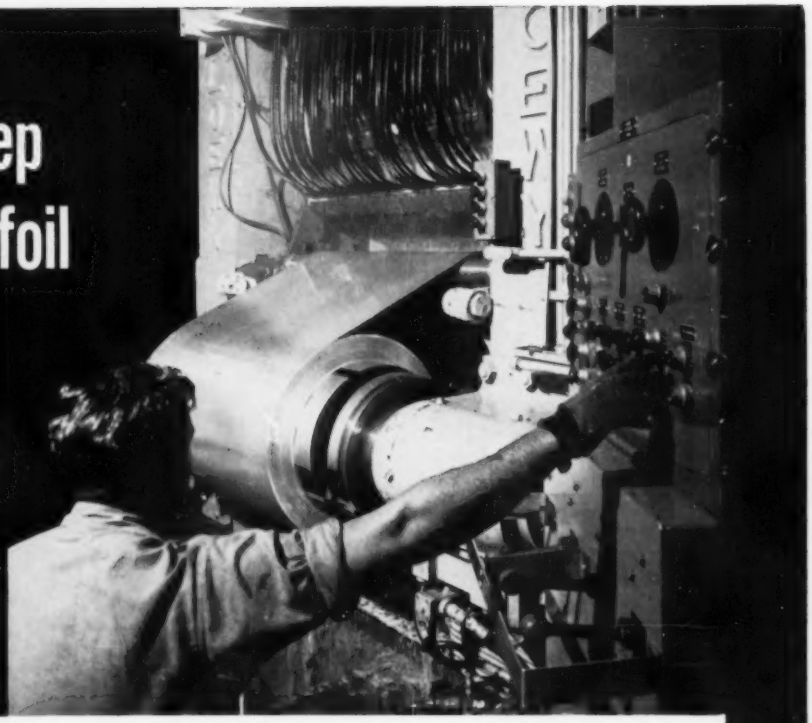

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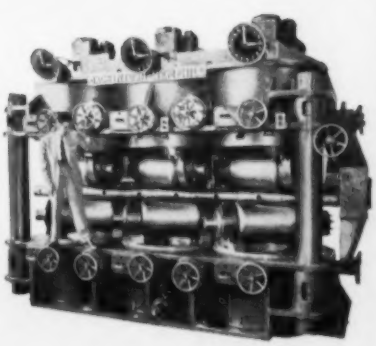

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